Pit and Quarry

With which is consolidated

CEMENT-MILL & QUARRY

December, 1933

Purchasing Power Is Growing

THE increased earnings of American labor are finding their way into the bank accounts of industry. More than four million people have been returned to employment during recent months, largely through the direct effects of the widespread signing of the President's Reemployment Agreement and of the industrial codes of fair competition which have taken its place in many industries. These newly employed workers are turning hundreds of millions of dollars into the channels of trade and are thus bringing back to industries of all kinds that revival of demand which is essential to their profitable operation.

Prices are rising, partly because of the increased cost of production brought about by operation under N. R. A. codes, partly because of the increasing demand for the products of industry. These increasing prices justify and insure the continuance of that reemployment which the National Industrial Recovery Act was designed to accomplish. Continuous employment is the greatest stabilizing factor in the improvement of business, and the country is assured of an increasing degree of employment by the ever-widening sphere of code operation.

To the force of industrial recovery occasioned by application of N. R. A. principles of shorter hours and higher pay must be added the drive of the national public-works program. The latest reports of the Federal Emergency Administrator of Public Works reveal the tremendous progress that has been made, not only in the approval of projects deserving of Federal aid, but also in the placing of contracts and in the progress of actual work. The Public Works Administration has already approved public-works projects whose estimated cost will be $2,653,486,984. Federal projects approved will cost $2,208,624,811 and non-Federal projects $444,862,173. Projects are being approved at the rate of approximately $21,000,000 a week, and the entire Federal appropriation of $3,300,000,000 will have been allotted by the middle of December. The Bureau of Public Roads reports that 4,239 projects have been approved, that 3,266 projects are under contract, and that work is in progress on 1,890 of these. The total amount involved in the projects approved for the various states is $232,634,000. These approved projects are expected to employ 276,000 men, of whom 134,805 were at work on November 25.

Secretary Ickes says that work will be continued all through the winter, that there will be no cessation of construction such as usually occurs. This is essential if the President's reemployment drive is to be of greatest effectiveness. The decision to carry on despite unfavorable weather conditions is the answer of the P. W. A. to those procrastinators who, asserting that nothing would be started before spring, have been content to sit idly by waiting for others to institute the swell of recovery.

The effects of the President's public-works program are already being felt by our industries and supplies of stock-piled material are dwindling. Many producers who expected their plants to lie idle until the middle of next year are beginning to realize that their wheels may start turning before the end of this year. With that change of prospect comes the conviction that improvements in production facilities, those that are essential to the making of a profit under code conditions, must be made during the next few months or, if possible, at once, before the demands for the raw materials of public-works construction catch them unprepared. The prospect of better business is more than a promise; it has become a reality.

Pages 9-15

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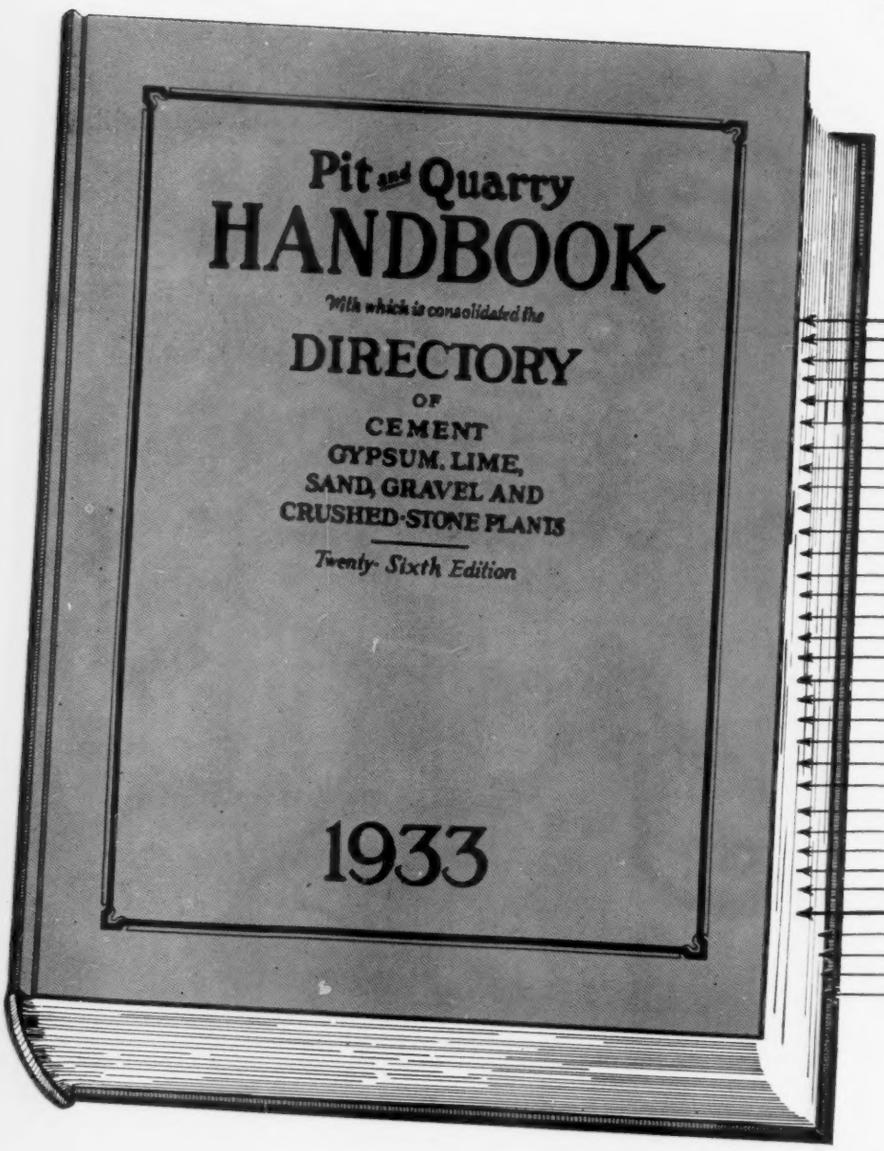

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to cash in on one of the most fundamental and active fields in the country. The codes are in effect, and operations are increasing in activity every day to satisfy the vast demands created by the $3,300,000,000 public works program. Projects already approved amounted to $2,653,486,984 on Nov. 12. Approved highway projects amounted to $232,634,000 on Nov. 18.

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CEMENT-MILL & QUARRY

Volume 26 December, 1933 Number 6

MEMBER AUDIT BUREAU OF CIRCULATIONS

Published on the first of each month for producers and manufacturers of Cement, Crushed Stone, Gypsum, Lime, Sand, Gravel and other non-metallic minerals. Entered as second-class matter November 28, 1932, at the Postoffice at Chicago, Ill., under the Act of March 3, 1879.

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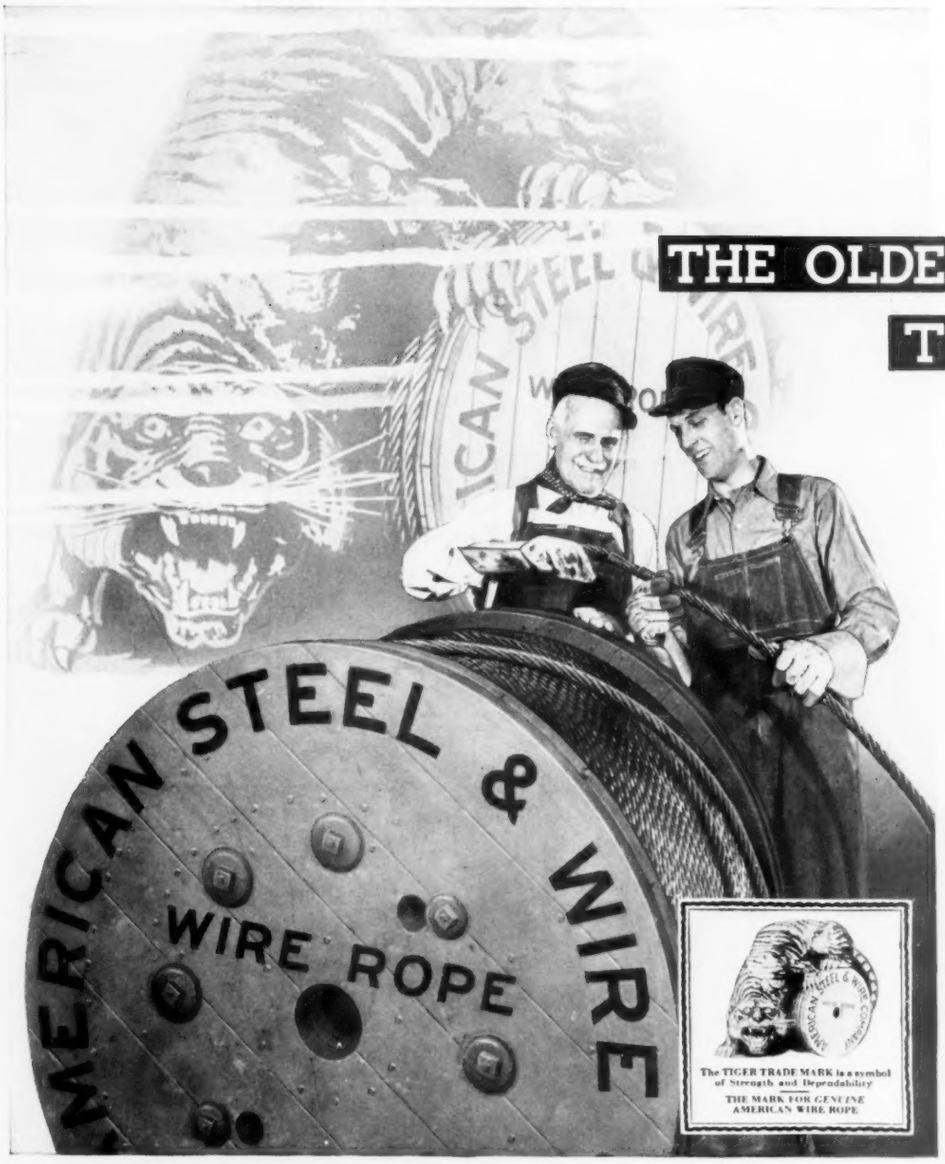
WHAT'S BACK OF WIRE ROPE IS VITAL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WIRE ROPE

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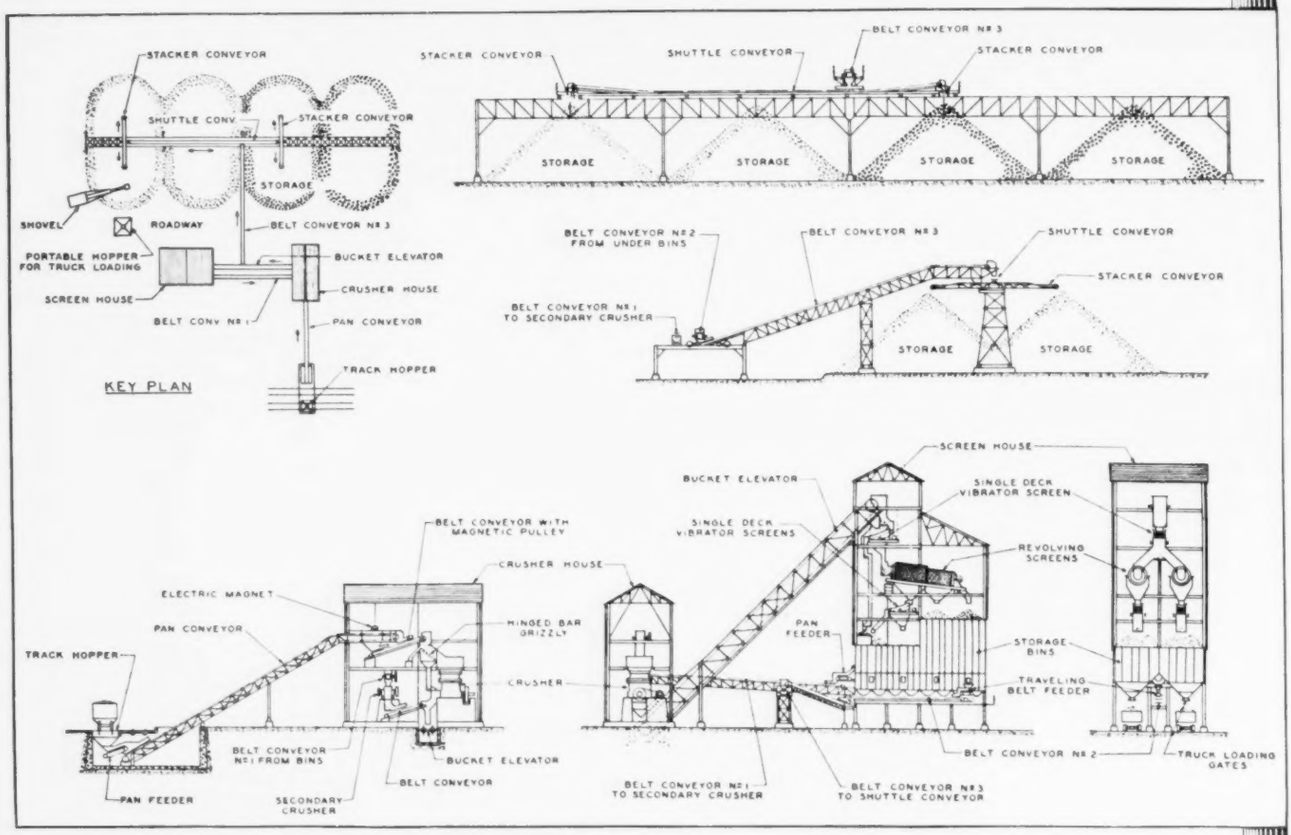


A Complete New Modern All-Steel Crushing and Sizing Plant

THIS PLANT has a capacity of 225 tons per hour and is equally useful on crushed stone and slag or gravel; or for the crushing and screening of any other material.

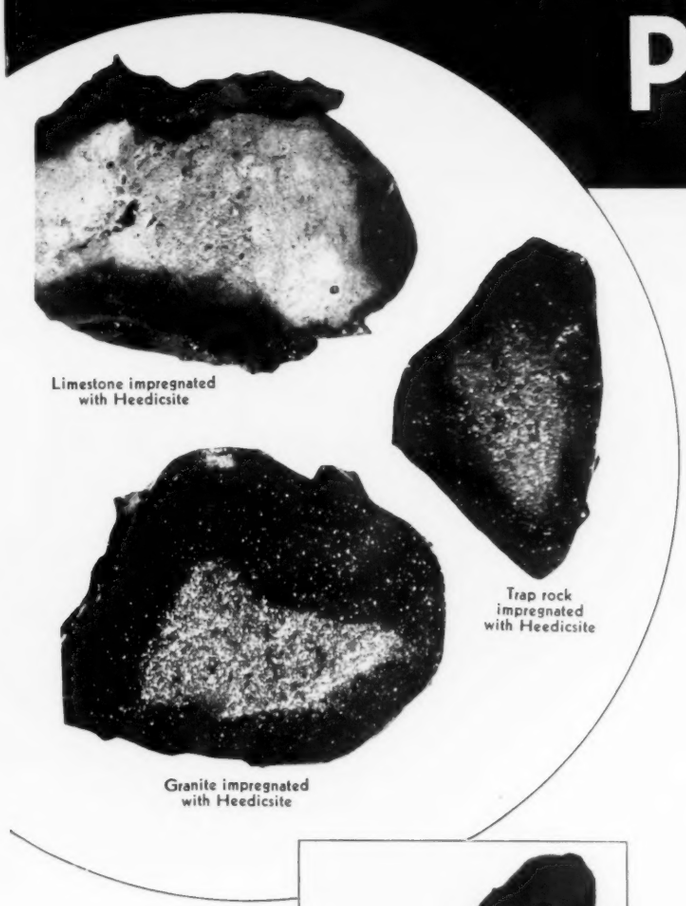
A NEW PLANT AND NEW MACHINERY driven by independent motors, 3-phase, 440-volt, 60-cycle; push button remote control; minimum labor requirements; eight large self-clearing bins; truck and car loading.

FOR SALE as a unit at an attractive price and on lenient terms. Owners can provide experienced engineering service to adapt this plant to any set of local conditions.

THE DETROIT SLAG & DOCK COMPANY

845 HANNA BUILDING, CLEVELAND

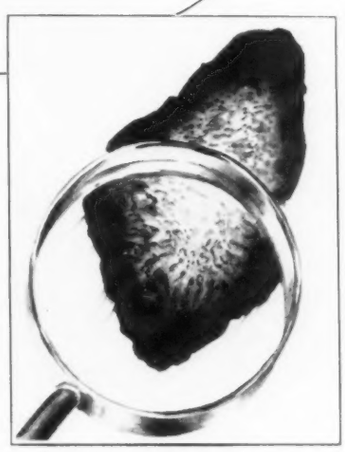
A NEW opportunity to increase your PROFITS



Limestone impregnated with Heedicsite

Trap rock impregnated with Heedicsite

Granite impregnated with Heedicsite



When mineral aggregate impregnated with asphalt by the Heedicsite method is viewed through the enlarging glass the deep even penetration is distinctly seen

Much of the present material used in road building is bituminous-mixed mineral aggregate. Using the Heedicsite method you can make an improved bituminous paving mixture at a lower cost than is possible by any other method.

Heedicsite-made material not only meets state specifications but is so superior that highway engineers who have examined it have given their enthusiastic approval. The product is permanently free from water, the penetration is greater, and the bond more homogenous.

Because of the simplicity of the process, the plant costs less than ordinary plants. The system used is automatic, requires the minimum of attention, and is as free as possible from human error.

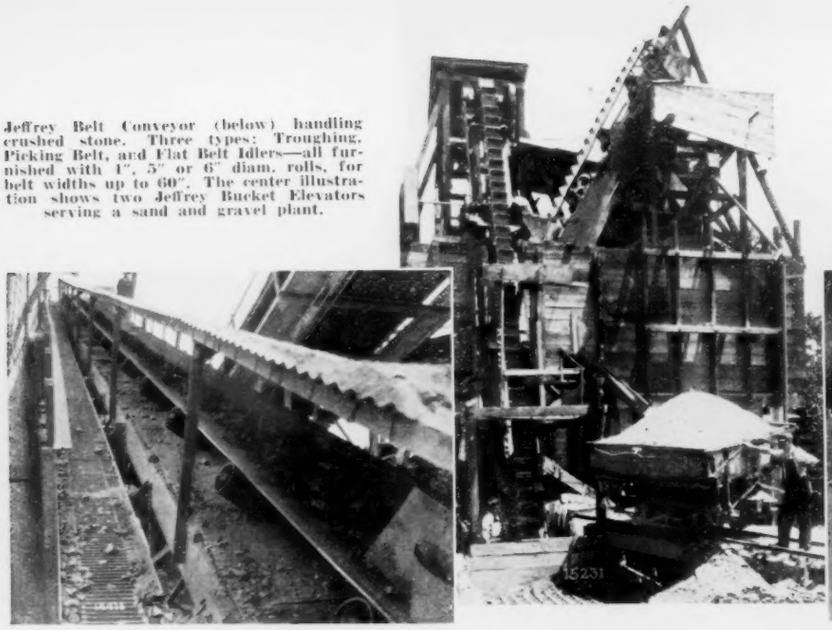
Write for details regarding the Heedicsite method and the unusual franchise offered.

THE HEEDICSITE CO.
GRAND RAPIDS, MICHIGAN

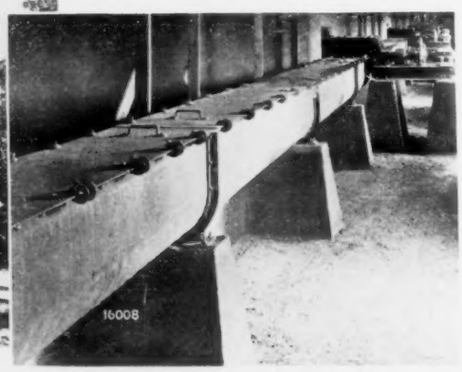
THE HEEDICSITE *METHOD*

of impregnating mineral aggregate with asphalt

Jeffrey Belt Conveyor (below) handling crushed stone. Three types: Troughing, Picking Belt, and Flat Belt Idlers—all furnished with 4", 5" or 6" diam. rolls, for belt widths up to 60". The center illustration shows two Jeffrey Bucket Elevators serving a sand and gravel plant.



Jeffrey Spiral Conveyor (below) handling cement. Dust-proof covers fit snugly, making an ideal conveyor for light dusty materials. Spiral Conveyors have no return strand—fit snugly under roofs, floors, over bins, through trusses, beams, etc.



VERSATILE

Jeffrey Material Handling and Reduction Equipment is just that. Many tasks can be accomplished with the various units in our diversified line.

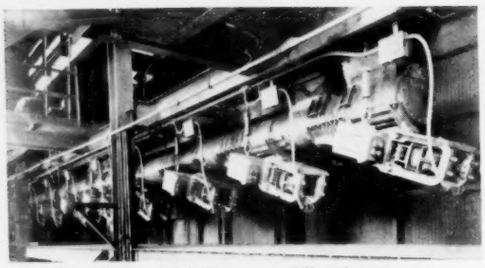
There are Conveyors—Apron, Belt, Spiral, Scraper, Electric Vibrating and other types—which provide a constant flow of material at all times.

Bucket Elevators—in any style or size you need—intermittent or continuous—vertical or inclined—malleable, supermal or steel buckets—any size chain, for the light or heavy job.

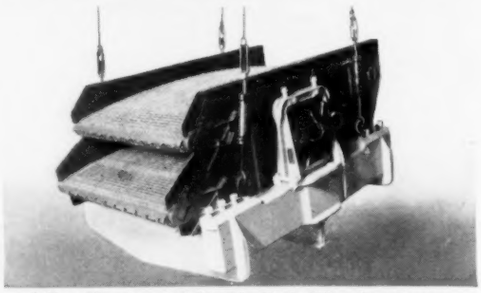
Crushers and Pulverizers—made in several types for reducing almost every kind of material used in the rock products industries.

Screens—Feeders—Sand Settling Tanks—Portable Loaders—etc.

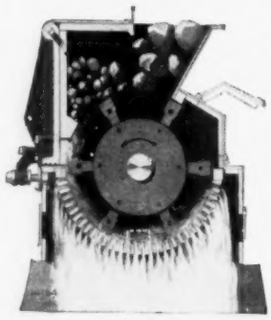
Write for complete information and literature.



Jeffrey-Traylor High-frequency Vibrating Conveyor.

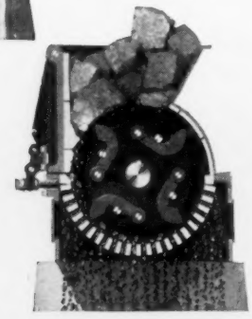


Jeffrey-Traylor F B Double Deck Vibrating Screen.



Jeffrey Reduction Units

There are Jeffrey Pulverizers and Crushers for reducing stone, gravel boulders, gypsum shale, trap rock, coal, etc., to any desired fineness. Two types are shown here—the Type B Pulverizer (left) and the Flextooth Crusher (below).



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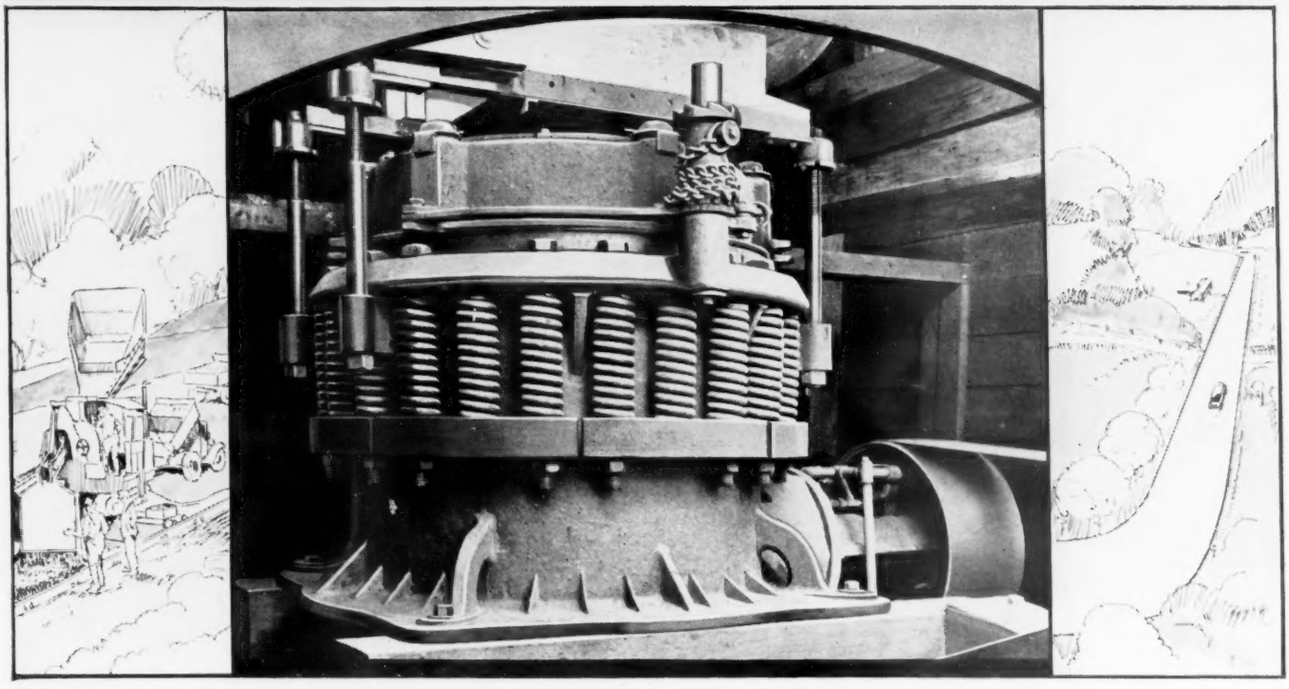
MATERIAL HANDLING EQUIPMENT

Producing Fine Material for Roads
and — at a Lower Crushing Cost, too!



An installation of a three foot Symons Cone Crusher in the Pacific Northwest, used exclusively for the production of finely crushed road materials.

For ordinary sizes use a
STANDARD SYMONS CONE
while for still finer crushing use the
NEW SHORT HEAD CONE

Standard Crushers are built in 2, 3, 4, 5½ and 7 foot sizes; the Short Head in 3, 4, 5½ and 7. One of these will surely solve that fine crushing problem of yours.

With the big road program now under way, there is going to be an unusual demand for finer sizes of crushed materials particularly for "black-top" and similarly surfaced roads. Plants that were not designed to produce such sizes are going to be handicapped, both in ability to make delivery in the quantity needed and at a cost that will return a reasonable profit. The two types of Symons Cone Crushers now available will produce just the sizes needed. When installed in existing plants, they eliminate the expensive operations of producing such sizes for which there is little demand; also needless stock-piling and re-handling. Produce the sizes you want when you want them with a Symons Cone.

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MAY -9 1934

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Pit and Quarry

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CEMENT-MILL & QUARRY

CHICAGO, DECEMBER, 1933

Pres. Roosevelt Signs Cement-Industry Code

DECEMBER 7 IS EFFECTIVE DATE

The Code of Fair Competition for the cement industry was signed by President Roosevelt on Nov. 27 and will go into effect on Dec. 7. Comparatively few changes were made in the accepted form from the tentative code which met with the approval of the cement industry when presented at the formal hearing on Sept. 15. Much credit is due Deputy Administrator Muir, the Washington committee of the Cement Institute, and the cement industry in general for reconciling the many conflicting interests which objected to numerous provisions of the code. Although official copies of the accepted code are not yet available, Article VII is given below substantially as it was approved.

ARTICLE VII—INCREASE IN PRODUCTION CAPACITY

Prior to the construction or operation of a new plant or the increase in the productive capacity of an existing one, or the movement of all or part of such a plant from one place to another, the Cement Institute, on receipt of such information, shall promptly collect complete information concerning existing productive capacities in the area in which the proposed new plant is to be located, together with data concerning consumption of cement in that area. If these data disclose that such new plant will result in further increasing the problem of overproduction or overcapacity in such area, the Cement Institute may petition the President to prohibit the construction or operation of the proposed new plant or the increase in manufacturing capacity of such existing plant. The provisions hereof shall not be construed to prevent the modernization of existing plants to improve quality of product and/or operating efficiency. The Board may study the problem of permanent excess of productive capacity in any area and may, from time to time, prepare and submit to the Administrator for consideration plans for the closing down or amortization of the less economical plants.

Road-Builders to Hold Convention in Chicago

The annual convention and exhibit of the American Road Builders' Assn. will be held on January 22, 23, 24 and 25 at the Stevens Hotel, Chicago, Ill. Indications are that this will be one of the most important conventions ever held by this association as plans will be formulated for a campaign for the continuation of an adequate highway program. According to Chas. M. Upham, engineer-director, the subject of diversion of road money into other channels will also receive considerable attention.

All-Steel Boat Launched by Dolomite Products Co.

The launching of the 214-ft. all-steel cargo ship Dolomite No. 1 late in October was an event which marked the completion of another original development of John H. Odenbach, president of the Dolomite Products Co., and other companies. A crowd estimated at several thousand attended the dedication ceremonies which were in charge of Mr. Odenbach.

The launching took place at the yards of the Dolomite-Marine Corp. near Rochester. Launching was not done in the usual manner as the hull of the boat was built in an improvised dry-dock consisting of a section of the bed of the canal on which the yards are located, separated from the main canal by earthen dikes. The boat was launched by blowing open a section of the dike with dynamite.

The Dolomite No. 1 shortly after launching.

The boat is all-steel and is entirely electric welded. It has a capacity of 1300 tons and is driven by two 240-hp. Busch-Sulzer Diesel engines. It was constructed under the supervision of Mr. Odenbach to his own original design. When carrying aggregates, hoppers in the boat discharge to belt conveyors which feed to a boom belt conveyor on deck. The boat can also be used for transportation of liquids and has been chartered for the Winter by an oil company for regular service between Norfolk, Va., and New York. Next summer the boat will be used on the New York barge canal and the Great Lakes.

Aggregate Conventions Slated for Cincinnati

STONE, GRAVEL AND SLAG UNITE

The annual conventions of the National Crushed Stone, National Sand and Gravel and National Slag Associations will be held January 23 to 26, 1933, at the Netherland Plaza Hotel, Cincinnati, O. They will be preceded on Sunday, Jan. 21, by the annual meetings of the directors of the three associations and on Monday, Jan. 22, by the first organizing meeting of the mineral aggregates industries code authority.

Each association will hold its convention independently but there will be joint sessions on subjects common to all. This is expected to be the most important meeting ever held by these industries because it is the first to be held since the approval of the mineral aggregates code. This will provide opportunity for discussion of problems which have arisen since the code became effective. The time usually devoted to technical papers and discussion will be devoted to code problems.

Arrangements are being made for obtaining reduced railroad fares for those attending. The Netherland Plaza Hotel will send out reservation blanks to all producers to give them an opportunity to reserve rooms in advance. Due to the holding of the three conventions at one time and the important recent developments a large attendance is expected.

Tennessee Producer Buys Competing Plant

According to reports the Wautauga Stone Co., Elizabethton, Tenn., has taken over the East Tennessee Sand & Gravel Co. which also operated a plant at that point. R. F. Campbell is vice president and general manager of the Wautauga company and Ed Reynolds is superintendent.

★ The National Lime & Stone Co., Findlay, O., recently enlarged and improved its fine reduction plant at Carey, O. A Bartlett & Snow drier, vibrating screens and other equipment were installed.

Lime-Code Amendment Proposed for Dolomite

MAY ADOPT SPECIAL PROVISIONS

An amendment to the Code of Fair Competition for the lime industry to broaden its provisions to include the dolomitic refractories industry was presented Nov. 23 at a hearing before Deputy Administrator Ralph Fogg of the National Recovery Administration, with indications that it will be adopted without controversy.

The lime-industry code was signed by the President Oct. 3, and is now in full effect. When hearings thereon were held in Washington, it was shown that eight to ten of the leading manufacturers of lime are also engaged in the manufacture of dolomitic refractories, and the suggestion was made then, that whereas the lime-industry code did not entirely meet the requirements of the dolomitic-refractories plants, an amendment might be worked out later with a separate paragraph meeting the situation. It was agreed at the time that, since the manufacturers of dolomitic refractories are engaged in the manufacture of lime, the lime code should serve as a basic code as to hours of labor and wages, after the proposed provision to care for the dolomitic refractories had been adopted.

Hugh Eells, president of the Basic Dolomite Co. of Cleveland, O., and also president of the Dolomitic Refractories Institute, presented the amendment, to be designated as Article VI, saying that the greater part of the steel produced in the United States is made by the basic open-hearth process and that dolomitic refractories are used to repair the hearths, usually of magnesite origin, in the basic steel-producing furnaces. After steel is refined the furnaces are tapped and all the repairs made thereafter call for the use of dolomite. The reason for this is that magnesite, chiefly an imported mineral and found in the United States only in the far west, usually sells for $45 a ton, whereas the prevailing price for dolomite is $8 to $9 per ton, the manufacture of dolomite is carried on chiefly north of Ohio River.

As to the extent of the industry, it was stated by Mr. Eells that in 1929 4,269,768 tons of lime, with a value of $33,478,848, were sold, with sales of dolomite amounting to 488,032 tons, valued at $4,261,942, as against sales of lime in 1932 of 1,959,990 tons valued at $12,302,231, and 135,733 tons of dolomite valued at $1,055,339.

In further explanation it was stated that manufacturers of dolomitic refractories were paying labor more than the 37½c. an hr. provided in the lime code for the North, where the refractories are manufactured. The manufacture of dolomitic lime for sale as a refractory was pointed to as a separate industry but at the lime plants the same equipment is used. The necessity for the amendment was explained in an amendment to the amendment agreed upon in conference. This requires all manufacturers to register their output, increases of machinery or changes in prices with regional committees which would correspond in locality to those of the lime code.

The chief provision of the amendment is that each manufacturer would be represented on the dolomite control committee, it being stated that all manufacturers in the country had agreed to the amendment except two and they had signed an agreement to participate.

C. J. Ramsburg, Washington, D. C, industrial adviser, inquired why the industry did not present the amendment to the refractories code, to which Mr. Eells replied that nothing as to limestone was said in that code and the natural place for the amendment was in the lime-industry code.

Norman G. Hough, president of the National Lime Assn., Washington, D. C., explained that the proposed code was entirely acceptable to the lime industry, that the raw material was the same, and that 75 per cent of the producers of the dolomitic industry make lime. He said that the amendment simply broadened the lime-industry code, which is for manufacturers of burned lime and affiliates, to constitute a self-governing body of the manufacturers of dolomitic refractories as to all relations and was essential. He stated that the entire dolomitic-refractories industry was represented at the meeting directly or indirectly and that complete unanimity prevailed as to provisions, since the lime code did not apply to this industry.

Deputy Fogg then asked for immediate conferences to expedite the amendment so it may be approved by the President.

Attending the hearing as representatives of the industry were Messrs. Norman G. Hough; Hugh Eells; Daniel Baker, Jr., Joseph D. Baker, Jr., and Frank C. Thomas of the Standard Lime & Stone Co., Baltimore; Benjamin P. Williams of the Valley Dolomite Co., St. Louis; B. L. McNulty of the Marblehead Lime Co., Chicago; S. W. Stauffer of the J. E. Baker Co, York, Pa.; and Bolton L. Corson of the Cordol Co., of Plymouth Meeting, Pa.

The Dolomitic Refractories Industry proposes the following amendment and addition to the Lime Code.

ARTICLE VI

Within the meaning of this Code, as amended by the additions of this Article VI, the term "Lime Industry" not only has the meaning stated in Article I, Section 1, but also includes the manufacture of dolomitic lime for sale as a refractory, irrespective of the extent of burning or of other refinements. The manufacture of dolomitic lime (referred to herein as "dolomite") for sale as a refractory is hereinafter referred to as the dolomite division of the Lime Industry, which division throughout the continental United States shall constitute a self-governing branch of the Lime Industry to the same extent and in the same respects as each Lime Industry District constitutes a self-governing branch of the Lime Industry. The members of the dolomite division shall select a "Dolomite Control Committee" for the entire United States, consisting of one representative of each such manufacturer. The Dolomite Control Committee shall exercise and perform the duties and powers in respect to the dolomite division which the District Control Committees have under the Code in respect to their respective districts, and shall be subject to the same restrictions, limitations and requirements. References in this Code to the respective Lime Industry Districts or District Control Committees shall be construed as also referring to the dolomite division or to the Dolomite Control Committee, as the case may be, unless the context requires a different construction, except that the term "District," when applied to the dolomite division shall refer to the continental United States. The Dolomite Control Committee shall also exercise and perform in respect to the dolomite division the powers and duties which the Trade Relations Committee has in respect to the remainder of the Lime Industry under Article III, Section 1; Article III, Section 3, subdivisions (c) and (d); Article IV, Section 2; and Article V, Sections 1 and 2 including the provisions contained in subdivision (b) of Section 2 of Article V as to collecting reports and furnishing them to the Administrator. The last sentence in subdivision (a) of Section 5 of Article V shall not be applicable to the Dolomite Industry provided that appeal may be taken to the Administrator from the Dolomite Control Committee in the manner and in the respects specified in subdivision (c) of Section 5 of Article V. The representatives appointed by the Administrator to the Trade Relations Committee pursuant to Section 1 of Article V shall ipso facto be appointed to the Dolomite Control Committee and, as representatives on the Dolomite Control Committee, shall have the same powers and duties in respect of the dolomite division as they have as representatives on the Trade Relations Committee in respect to the remainder of the Lime Industry. The Trade Relations Committee and the Dolomite Control Committee shall from time to time determine and agree upon the portion of the cost of the administration of this Code to be borne by the dolomite division, which portion shall be apportioned among the manufacturers of dolomite as they may themselves agree.

For the purpose of facilitating the administration of this Code within the dolomite division in coöperation with the Administrator any member or representative of the Trade Relations Committee designated by it shall be a non-voting member of the Dolomite Control Committee.

Building New Gravel Plant in Oklahoma

★ The Texhoma Sand & Gravel Co., Hugo, Okla., which was recently incorporated for $10,000, reports that it has under construction a new 500-ton capacity plant at Kelland, Okla. A dragline will be used for excavating the material from river deposits.

Minnesota Producer Plans Plant Expansion

C. H. Taylor, Duluth, Minn., operator of four large gravel pits in the northern part of the state, has purchased the controlling interest in the Prairie Sand & Gravel Co., Austin, Minn. Mr. Taylor is now president and treasurer of the company, Geo. C. Kissling is vice president, and E. J. St. Lawrence is secretary. Plans for expansion are under way.

★ The Michigan Silica Co., Rockwood, Mich., has installed six new screw washers in its washing plant. A heater for this building was also installed.

The Keystone Portland Cement Co. announces the removal of its general offices to the Girard Trust Bldg., 1400 South Penn Square, Philadelphia, Pa.

Premixed-Concrete Code Still Under Discussion

CONFERENCES STILL BEING HELD

The fixed hours that employees shall work before overtime pay begins, unfair competition on the part of collateral industries, and the manner in which small units shall be classfied still remain subjects of conferences on the Code of Fair Competition for the mixed-concrete industry at the offices of the National Recovery Administration.

The proposed code was originally submitted Aug. 11, revised Sept. 18, and hearings were held Oct. 26, before Deputy Administrator Ralph Fogg, an experienced construction engineer.

Some delay has been encountered in securing unanimity of expression as to various phases of the document since the industry is now widely distributed, including some 300 plants, which represent its growth from only 25 in 1925.

The code was presented at the hearing by H. F. Thomson, of the General Materials Co. of St. Louis, who explained its provisions as favored by the National Ready Mixed Concrete Assn., representing 60 per cent. of the industry at the time of the hearing, though a number of companies have since become members of the association on account of the code.

While Mr. Thomson has kept in constant touch with the status of the code, conferences have been conducted at the N.R.A., chiefly by V. P. Ahearn, secretary of the national association, and Stanton Walker, engineer. On the other hand, Deputy Administrator Fogg has delegated the handling of the code in its final stages, and especially as to conferences, to James S. Burch, one of his assistants, who has had considerable experience as a highway engineer.

Appreciable progress has been made during the last two weeks at the various conferences held, and indications now are that a general accord will soon be reached and thus allow the code to be sent to the legal division of the administration to be put into legal form.

Labor representatives in the N.R.A. are still contending for a work-week below 40 hr., but it may be stated that 40 will be adopted, with ample provisions made for a 48-hr. week in cases of emergency on the theory that concrete is a perishable product, and must be delivered to the contractor within at least an hour after it is made. The desire of the industry that it be placed in the same category with others that turn out perishable products will most likely be followed, with the specific provision that the 48-hr. limit will be fixed.

The question as to when overtime shall begin has practically been decided upon, but whether it shall start at the end of 8 hr. or 9 is yet to be determined. Labor urges that time-and-one-half be paid for all overtime, and that this should start at the end of the authorized day's work.

Another phase of the code still under discussion relates to industries closely allied which might desire to furnish mixed concrete to builders and thus place the industry at a disadvantage. Various aspects of this have been gone over, and an agreement is imminent whereby the industry is to have all the safeguards in this respect desired.

In regard to small units which have sprung up in some communities with little or no equipment and which are able to cut prices, a schedule is being worked out whereby the industry as a whole is to be protected by a special classification which it is said will fully meet the situation.

Upon the whole it may be said that satisfactory progress is being made in harmonizing the various differences with indications that the code will be in effect within the average time that it has taken for others of a similar nature and which had widely-scattered areas to be considered in reconciling questions that arose.

Cement Plants Have Own Safety Exhibit

The Lone Star Cement Co., N. Y., Inc. and the Universal Atlas Cement Co. plants at Hudson, N. Y., recently had a combined exhibit in the windows of the Hudson Chamber of Commerce to illustrate the safety work being done at these plants. The Lone Star exhibit was centered about a large painting of the safety trophy with the cement plant in the background. This was the work of L. R. Hennessey, a chemist at the plant. Included in the exhibit were safety goggles, a welding hood, dust hood and respirator, and explanations of their uses. The Universal Atlas display included a safety hat, shoes, plaques, etc.

Painting of cement safety trophy.

Contact Let for New Plant in Wisconsin

★ The Minnesota Mining & Mfg. Co., St. Paul, Minn., has let a contract for the construction of a crushing plant at Wausau, Wis. According to the company this will materially increase the production of this plant.

Construction Contracts Show October Increase

FIGURE 35 PER CENT. OVER 1932

Construction during recent weeks continued to forge ahead under the impetus of the federal public works program. Contracts awarded during October in the 37 states east of the Rocky Mountains totaled $145,367,200, a figure larger than has been reported in any month since November, 1931, with the exception of the May, 1932, total, according to F. W. Dodge Corp.

Added significance is lent by the fact that last month's total was 35 per cent. larger than the figure of $107,273,900 reported for the corresponding month of 1932 and 18 per cent. ahead of the total of $122,549,400 recorded in September of this year.

Of the October contract total, 70 per cent. represented public-financed undertakings of all descriptions, i.e., projects wherein the funds are from either the federal, state or local public treasuries or both. Specifically, publicly-financed construction awards in the 37 eastern states accounted for $101,000,000 of the October total; this is $27,000,000 more than in September and is almost six times the total of such work reported in April of this year, when publicly-financed construction was at its lowest ebb. In fact, publicly-financed contracts for construction awarded during October were larger than have been recorded in any month in more than two years.

Kentucky Cement Plant Installs Recuperators

★ The Kosmos Portland Cement Co., Kosmosdale, Ky., has purchased two Vanderwerp recuperators to be applied to two 8½ by 125-ft. rotary kilns. They are expected to be in operation in January. It is said that the cooling effected in the kilns, together with the after cooling performed in existing rotary kilns, will permit the clinker to be handled to storage on an ordinary belt conveyor.

Correction

In the article "Some Notes on the Application of Kühl's 'Correct' Lime-Content Formula," which appeared in the Nov., 1933, issue of PIT AND QUARRY the following statement on page 38 should be deleted. "Accordingly, the original clinker containing 69.3 per cent. lime, if perfectly burned, should contain theoretically a little less than 3.6 per cent. of uncombined lime. An actual determination of uncombined lime in this clinker gave 3.33 per cent., which checks beautifully with the theoretical result." According to the author the above statements are in error and inconsistent with the purpose of the article.

Industrial Sand Men Accept Aggregate Code

DIVISION OF NATL. S. & G. ASSN.

What was probably the largest gathering of industrial sand producers that has ever convened took place on Nov. 9 at Pittsburgh, Pa., when over 50 of the executives of companies in this field met with officials of the N.R.A. to decide how the industry was to function. A. Warsaw, president of the Wedron Silica Co., Chicago, Ill., and chairman of the temporary organization committee of the industry, presided at the meeting. The N.R.A. was represented by R. E. Plumpton, assistant to R. M. Pirnie, who is supervising the mineral-aggregates and other nonmetallic-mineral codes, and Col. Willard T. Chevalier, industrial advisor to the N.R.A. on the mineral-aggregates, ready-mixed-concrete and other codes.

After addresses by Col. Chevalier, Mr. Plumpton and V. P. Ahearn, executive secretary of the National Sand & Gravel Assn., the meeting unanimously voted to adopt a report of the organization committee providing for the organization of a divisional group of the National Sand & Gravel Assn., to be known as the Industrial-Sand Industry and to be under the Code Authority of the Crushed-Stone, Sand-and-Gravel, and Slag Industries. Extracts from this report follow:

1. That the term *Industrial Sand Producer* be defined to mean any member of the industries engaged in the recovering and/or processing of sand for purposes other than construction and/or building.

2. That the Industrial Sand Industry comply with the provisions of the National Industrial Recovery Act by adopting the Code of Fair Competition of the crushed-stone, sand-and-gravel, and slag industries, by operating as a division under this code as provided in said code.

3. That, in order to carry out the provisions of recommendation No. 2, a Permanent Organization Committee be established, charged with the responsibility of preparing, and securing the approval of the National Recovery Administration to such supplemental articles and stipulated revisions to the above code as may be found necessary to adapt this code to the needs of the Industrial-Sand Industry.

4. That this Permanent Organization Committee also be trusted with the responsibility of effecting a definite organization of the Industrial-Sand Industry, as a Division of the National Sand & Gravel Assn., with the understanding that the Industrial-Sand Industry will have self-government through such division in the organization of its group and in the administration of its affairs.

5. That the following be established as the major classifications of industrial sand: (A) Glass and other melting sands, (B) Foundry sand—unbonded, (C) Foundry sand—bonded, (D) Ground sand, (E) Blast sand, (F) Traction, grinding and miscellaneous sands.

6. That, in order to conform with the code, these major divisions of industrial sand be further divided into geographical producing regions, in order that opportunity may be thus afforded for the maximum amount of local self-government in the administration of the provisions of the code.

7. That a budget of anticipated expenditures in the interim prior to the first meeting of the Code Authority be established and that the costs be equitably apportioned among industrial-sand producers.

8. That, in view of the unquestioned value of the data already collected and compiled under the auspices of the Temporary Organization Committee, the Permanent Organization Committee be instructed to expand the statistical activities of the Temporary Organization Committee in order that the Industrial-Sand Industry may have at its disposal a more adequate understanding of the economic significance of the industry.

Tentative Geographical Regions. — In recognition of the magnitude of the task of dividing the country by geographical producing regions, in order fully to reflect the needs of the various divisions of the Industrial-Sand Industry, the following is suggested as a basis for discussion of the problem. It is important that the Organization Committee receive the benefit of the suggestions of all producers in attendance at this meeting. Please let us emphasize that the Organization Committee requires the active coöperation of all producers at the meeting in reaching a solution of this problem.

Glass and Melting Sand

1. Delaware, New England, New Jersey and New York.
2. Maryland, Pennsylvania, Virginia and West Virginia.
3. Kentucky, Michigan and Ohio.
4. Illinois, Indiana, Missouri and Wisconsin.
5. Arkansas and Oklahoma.
6. California and Nevada.

Ground Sand

1. Delaware and New Jersey.
2. Ohio, Pennsylvania, Virginia and West Virginia.
3. Illinois, Missouri and Wisconsin.

Blast Sand

1. Delaware, Eastern New York (east of a line from Rochester to Elmira), Eastern Pennsylvania (east of Altoona), New Jersey, Maryland, Virginia and West Virginia.
2. Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Ohio and Wisconsin.

Foundry Sand—Unbonded

1. Delaware, District of Columbia, Eastern Maryland, Eastern New York, Eastern Pennsylvania and New England.
2. Northern Indiana (north of Fort Wayne), Michigan, Ohio, Western Maryland, Western New York, Western Pennsylvania, Virginia and West Virginia.
3. Illinois, Indiana (south of Fort Wayne), Iowa, Minnesota, Missouri and Wisconsin.
4. Arkansas and Oklahoma.
5. California.

Foundry Sand—Bonded

1. Delaware, Eastern Maryland, Eastern New Jersey, Eastern New York and Eastern Pennsylvania.
2. Ohio, Virginia, Western Maryland, Western New York, Western Pennsylvania and West Virginia.
3. Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri and Wisconsin.
4. Arkansas and Oklahoma.
5. California.

Traction, Grinding and Miscellaneous Sand

1. Delaware, District of Columbia, Eastern New York, Eastern Pennsylvania, Eastern Maryland and New England.
2. Kentucky, Ohio, Virginia, Western Maryland, Western New York, Western Pennsylvania and West Virginia.
3. Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri and Wisconsin.
4. Arkansas and Oklahoma.
5. California.

The formal hearing for this industry will be held on Dec. 8 in the office of Malcolm Pirnie, deputy administrator, in Washington. This hearing will be a mere formality under the form of procedure set up for the adoption of codes and no attendance of producers is expected as a majority were in accord with the code of the mineral-aggregates industry as adopted on Nov. 9 and in favor of becoming a division of the National Sand & Gravel Assn.

Slate Industry Code Meets with Objections

ASK FOR WAGE DIFFERENTIALS

A code of fair competition for the slate industry, which its sponsors promised would return all workers in this field to their jobs by returning the quarries to normal operation, was attacked in several of its major particulars at a public hearing in Washington, Nov. 9.

Virginia producers injected the controversial subject of north and south wage differentials, which was not contemplated in the draft presented to the National Recovery Administration, and organized labor demanded higher wages and shorter working weeks, while one producing region countered with a demand for wages below the minimum fixed in the projected code.

Challenged, also, was the suggested make-up of the code authority to administer the compact. Some of the quarrying districts complained the proposed plan would shut them out of representation and place their operations under the control of branches of the industry producing different types of slate and serving markets entirely apart from theirs.

The hearing was conducted by Deputy Administrator Ralph Fogg. Explaining that it is desired to have an early report in the hands of Adminstrator Hugh S. Johnson, Mr. Fogg announced supplementary briefs would be received for the record only within 24 hr. of the time of adjournment.

The prospect of increased activity on the part of home owners in the repair of long-neglected properties, and elaboration of the federal public-works program hold out hope for early rehabilitation of the slate quarrying industry, W. S. Hayes, executive-secretary of the National Slate Assn., declared in formal presentation of the code.

With the introduction of numerous substitutes for slate in roofing and other uses, the industry has been faced with a serious competitive problem which has given birth to dangerous trade practices and promises to continue injurying the industry unless a code which will control sales activities is adopted, he said.

The proposed code fixes a basic maximum work week of 40 hr. averaged over 6 months, not more than 48 hr. in one week. Exceptions from the maximum include emergency employees whose work is occasioned by breakdowns and other factors beyond control, managers and other employees engaged in work where, he said, the maximum of hours of employment create an impractical situation.

The code also fixes a minimum wage of $12 a week or 30 c. an hr., with no differential between those working in the North and those in the South. Child labor is abolished.

National Industrial Recovery

Public Works Program Making Rapid Progress

NEARLY 3 MILLIONS ALLOTTED

Eighteen weeks after he assumed direction of the public-works program, Secretary Harold L. Ickes announced that more than four-fifths of the $3,300,000,000 fund has been allotted for qualified job-creating projects.

The latest compilation of allocations shows allotments now total $2,653,486,984, leaving $646,513,016 unallotted. In announcing this figure, Administrator Ickes made public a detailed list of allotments to date, both federal and non-federal.

P.W.A. officials point out that the allotment of this vast amount of money to hasten employment and recovery has been accomplished in record time. The average daily allotment for the 126 days preceding Nov. 12 and since Mr. Ickes became Administrator has been $21,059,420. If allotments continue to be made at the same rate the entire $3,300,000,000 appropriation voted by Congress will be allotted before Christmas.

Allotments for federal projects amount to $2,208,624,811. This figure includes $400,000,000 from the public-works fund for immediate work relief to be administered by the new Civil Works Administration. Allotments for non-federal projects amount to $444,862,173.

P.W.A. officials are gratified by recent reports showing a steady decrease in unemployment and consistent increase in the value contracts covering public-works projects. Public-works dollars are now flowing into weekly pay envelopes in every section of the country with increasing velocity, with approximately two persons receiving indirect or industrial employment for each person recalled to work on a public-works construction site.

Allotments have been made for about 700 non-federal projects. Federal projects including federal-aid highways, number approximately 10,000.

With the close of business on Nov. 11 there were more than 1,300 non-federal applications for loans and grants pending in the Washington offices of the P.W.A. They are being examined by augmented staffs working day and night. Many others are either being prepared or are pending before the State Advisory Boards. About 300 non-federal applications are being received each week.

With organization perfected and a marked step-up reported during recent weeks not only in allotments but also in the number of contracts executed, P.W.A. is engaged in a determined drive to aid the heavy capital-goods industries and building trades. The allotment of $135,000,000 for loans to the railroads is calculated to stimulate activity in the capital-goods industries.

Additional allotments announced during the week ended Nov. 11 for public buildings, found to be socially and economically desirable, together with the organization of the Federal Emergency Housing Corp. and an increasing number of non-federal building projects are designed to pull the building trades out of the hole.

Continuous day, night and holiday work in the P.W.A. Legal Division has accelerated the number of bond-purchase contracts and grant agreements which are being sent to applicants who have received allotments. More than 300 contracts and agreements, prepared in the Washington offices, have been sent to applicants.

Results of Nov. 7 elections also will speed P.W.A. construction. The voters of many cities and towns passed favorably on bond issues for financing projects which either have been pending before the P.W.A. or now will be filed with the P.W.A. In some instances the vote of the taxpayers on the issuance of bonds was the last step necessary to the execution of construction contracts and getting work under way.

There will be no let-down due to winter weather in the P.W.A. drive to get men back to work. Construction work and the road program will be pushed with undiminished energy throughout the winter. Administrator Ickes has announced he sees no reason for a lag in the program during the cold months. In this connection he is having organized a special force of expediters, whose duty it will be to speed good projects and to see that there is no lessening of effort anywhere along the line. More southern projects will go under construction to counteract the effect of extreme cold on some types of construction in the north.

Another assurance that new jobs will continue to be created throughout the winter months was given recently when announcement was made of an allotment of $400,000,000 to the Civil Works Administration. This money will be made available at once to be spent for wages removing hundreds of thousands from relief rolls. Projects undertaken with this fund will be smaller and will get under construction more rapidly than those directly under the P.W.A. and the P.W.A. strict requirements for security and repayment will not apply.

★ The Mohawk Limestone Products Co. has installed a Niagara gyrating tube scrubber and made other improvements to its plant at Jordanville, N. Y.

1½ Billions Asked for Public Works Program

R. F. C. ALSO WANTS LARGE SUM

According to newspaper reports Jesse H. Jones, chairman of the Reconstruction Finance Corp., recently submitted to Budget Director Douglas an estimate calling for an additional $3,800,000,000 for this agency. It is understood that this money would be used chiefly to finance preferred bank stock purchases. Harold L. Ickes, public works administrator, is also understood to be asking for an additional $1,500,000,000. It is estimated that not less than $500,000,000 more for the federal relief administration will also be sought from congress at the January session.

Large Oregon Producer Entirely Reorganized

The Swigert-Hart Co., Portland, Ore., was recently formed to succeed the Swigert, Hart & Yett Co., in its business of sand and gravel distribution, ready-mixed concrete production and delivery, and towing and dredging. H. F. Puariea is vice president and general manager of the new company and retains his ownership of the Portland Gravel Co., wholesale producer of river sand and gravel. Porter W. Yett is now devoting all of his attention to the City Motor Trucking Co., a producer and dealer in rock, sand and gravel.

Universal Atlas Plants Achieve 1,000 Day Records

The Universal Atlas Cement Co. plant at Independence, Kans., on Sept. 27 completed 1,000 consecutive days without a lost-time accident. On Oct. 5 another plant of the same company, at Duluth, Minn., also achieved a 1,000-day record. These remarkable records qualify both of these plants for membership in the honorary 1,000-day club sponsored by the Portland Cement Assn.

★ The Keystone Limestone Co., Millsville, W. Va., a subsidiary of the U. S. Steel Corp., recently installed a new McLanahan & Stone log washer for washing road stone and furnace dolomite.

★ The C. & R. Construction Co., Hartford, Conn., has a new plant under construction. Acme Road Machy. Co. crushers, screens, elevators and other equipment is being installed.

Soft Lime Rock Code Approved by Industry

EXPECT NRA APPROVAL SHORTLY

The several companies in Florida and southeastern Georgia who quarry, crush and market soft lime rock similar to that used as a base in over 7,000 mi. of excellent highway in the two states, expect little trouble in securing the adoption of a code of fair competition by the National Recovery Administration.

At a hearing before Deputy Administrator Ralph Fogg on Nov. 2 complete unanimity prevailed among members of the industry as to accepting the code drafted at a conference held in Jacksonville, Fla., July 15, and approved at a subsequent conference at Tallahassee.

At the latter meeting, L. B. McLeod, of Willeston, Fla., president of the Southeastern Soft Lime Rock Assn., which presented the code, and William Palmer of Ocala, Fla., were named a committee to attend the hearing. They were accompanied to Washington by G. G. Ware, of Leesburg, Fla., and Willis Calloway, of Atlanta, Ga., association members. Their code was presented by Abram Myers, a Washington attorney.

The document provides a maximum work week of 40 hr., provided that foremen be employed not to exceed 8 hr. in any one day or 48 hr. in any one week, and provided further that time lost because of weather conditions or breakdowns in any one week may be made up as far as possible during the succeeding weeks or week of any calendar month. The maximum-hours limitation does not apply to executives, watchmen or employees receiving a weekly wage of $35 or more. The code also fixes a minimum wage of 25 c. an hr., but sets $14 a week as the minimum for office employees, in all instances time and one-half being added for overtime.

In presenting the code Mr. Myers stated that the industry was a very small one, which was confined exclusively to Georgia and Florida. Its product, soft lime rock, is a mineral which is easily crushed, is used mainly in road building, and contains upwards of 80 per cent. calcium carbonate, the stones used in road construction being usually 3½ in. in diameter. The industry was described as experiencing a revival due to the expenditure of federal road funds allotted by the Public Works Administration, after lying dormant during the recent business stagnation. It was also stated that in Florida alone 7,407 mi. of roads of all kinds had been improved by the use of soft lime rock, including surface roads.

Waldo C. Holden, representing the American Federation of Labor, offered an amendment that the minimum age for employment be fixed at 18 yr. in all instances, instead of 16 for the non-hazardous work, saying that all lines of occupation in the industry were more or less hazardous. He urged that hours of labor be reduced to 35 a week with 30 as the objective, and that 10 c. an hr. be added for underground work, 5 c. for night work, and that all payments of wages be made in currency.

Mr. Myers took exception to the statement of Mr. Holden that "some of the people are violating the N. R. A. code," whereupon the latter explained that his remarks were general and had no application to the industry applying for the code.

D. W. Tracy, president of the International Brotherhood of Electrical Workers, submitted a brief asking that minimum rates of pay and maximum hours of labor for electrical maintenance or repair workers be adjusted to provide time and one-half for overtime and 40 hr. per week.

Joseph V. Moreschi, president, and John W. Garvey, general representative of the International Hod Carriers' Building and Common Laborers of America, headquarters, Quincy, Mass., filed a brief contending that 25 c. an hr. was not enough pay for common mon laborers, and asked that the maximum week be 30 hr. of 5 days, 6 hr. employment each day.

Internat'l Cement Corp. Board Elects Officers

At a meeting of the board of directors of International Cement Corp. held Nov. 22 at the offices of the company, 342 Madison Ave., New York, Richard F. Hoyt was elected chairman of the board and chairman of the executive committee, to succeed the late late F. R. Bissell.

Charles L. Hogan, formerly senior vice president, was elected president of the corporation, to succeed Holger Struckmann, who died suddenly Nov. 17 in Copenhagen. Mr. Hogan was also elected a member of the board and executive committee.

Mr. Hogan has been identified with the cement industry since 1910, when he became traffic manager of the Lumbermen's Portland Cement Co. In 1914 Mr. Hogan became president and manager of the Altoona Cement Co., Altoona, Kan., where he remained until he became associated with International's Cuban subsidiary in 1921.

As senior vice-president of the International Cement Corp., Mr. Hogan was closely associated with the late F. R. Bissell, chairman of the board, and with Holger Struckmann, late president of the company. Mr. Hogan is a member of the board of directors of the Portland Cement Assn. and vice-president of the Cement Institute.

★ The Moraine Gravel & Sand Co., Dayton, O., has installed a Dayton Steel Foundry Co. heavy-duty roll crusher to meet the highway specifications for certain sizes of aggregate.

Many Cement Plants Reopen for Winter

STOCKS BECOMING DEPLETED

Indications point to a much higher ratio of production to capacity in the cement industry during the winter months than has been the case in recent years. This is due partly to the desire of cement companies to coöperate with President Roosevelt in keeping their men employed by part-capacity operation of their plants but probably even more to the realization that the president's efforts are resulting in a growing demand for cement which would deplete their stocks before the usual spring reopening. The latest cement statistics show an increase in cement shipments during the months of September and October, a condition which has no precedent in the history of the cement industry. Some indications of what is going on in the industry follow:

The Universal Atlas Cement Co. plant at Independence, Kans., reopened on Nov. 9 after a month's shutdown to make repairs to plant equipment. About 125 men went back to work and it is hoped that operations will continue through the winter, according to C. M. Carman, superintendent.

The Hawkeye Portland Cement Co., Des Moines, Ia., resumed operations on Nov. 17, reemploying 300 men. According to C. B. Condon, general manager, this move is intended to give the workers an income at this time.

The Superior Portland Cement Co., Ironton, O., resumed operation late in October and reports are that operations will continue indefinitely.

The Consolidated Cement Corp., Fredonia, Kans., resumed production late in October and expects to continue until the first of the year, according to L. W. Rogers, local manager.

The Oregon Portland Cement Co. plant at Lime, Ore., was reopened Nov. 1 for four months of operation, according to J. M. McClenahen, superintendent.

The Federal Portland Cement Co., Buffalo, N. Y., reopened Oct. 23 after having been closed down for more than two years. Advance orders alone call for 2½ months' operation at capacity.

New Detroit Slag Plant Operating at Capacity

★ The Great Lakes Steel Corp., recently put into operation a new slag plant near its furnaces on Zug Island near Detroit, Mich. Major equipment consists of a Traylor primary crusher, a Symons cone secondary crusher, Robins Gyrex vibrating screens, and Jeffrey conveyors, elevators, feeders, etc.

T. V. A. Buying Equipment for Crushed Stone Plant

★ The Tennessee Valley Authority, with headquarters at Knoxville, Tenn., has begun the purchase of equipment for the construction of a new 4,000 ton capacity crushed stone plant at Cove Creek, which will furnish aggregates for the dam to be built at that point. A Bucyrus and a Marion shovel and a number of trucks have already been purchased for this plant.

Cement Industry Loses Two Leading Figures

STRUCKMANN AND GEN. TREXLER

The Portland cement industry recently suffered the loss of two of its outstanding figures in the deaths of Holger Struckmann, president and general manager of the International Cement Corp., and Gen. Harry C. Trexler, chairman of the board of the Lehigh Portland Cement Co. General Trexler died suddenly on Nov. 16 at the age of 79 as the result of an automobile accident near his home at Allentown, Pa. Mr. Struckmann died on Nov. 17 at the age of 55 in Copenhagen, Denmark, just before he was to have returned to the United States after visiting subsidiaries of his company in South America.

Mr. Struckmann was born in Aalborg, Denmark, April 25, 1878. He spent his boyhood in Aalborg, later moving to Copenhagen, where he completed his education as a mechanical engineer. In 1902 he came to the United States and after spending a short time in the machinery manufacturing field became identified with the cement industry as superintendent of the Nazareth Portland Cement Co.'s plant at Nazareth, Pa. In 1904 Mr. Struckmann entered the employ of the St. Louis Portland Cement Co. as superintendent of their St. Louis plant, later becoming general manager, a position which he held until 1910. He then became identified with the Iola Portland Cement Co. at Iola, Kan., and within a short time was elected president of that company and vice president of the Texas Portland Cement Co. of Dallas, Tex.

In 1917 Mr. Struckmann became associated with the International Portland Cement Co., which was organized at that time for the construction and operation of cement plants in Cuba and Argentina. Two years later upon its organization Mr. Struckmann became president of International Cement Corp., which was formed to acquire the foreign properties of International Portland Cement Co., together with the plants of the Texas Portland Cement Co. and the Knickerbocker Portland Cement Co. Under Mr. Struckmann's management International Cement Corp. has grown to its present importance in the industry, with plants in Cuba, Argentina, Uruguay and Brazil, as well as ten domestic plants in the United States.

General Trexler was born at Easton, Pa., in 1854, and attended the public schools of Allentown and Tremont Seminary at Norristown, Pa., during his early years.

His entire career has been identified with business interests of Allentown and Easton, Pa., particularly the building material business. He became engaged in the lumber business at Allentown in 1878. About 20 years later the discovery of cement rock led to interest in the manufacture of Portland cement. As a result, General Trexler and the late Edward M. Young organized the Lehigh Portland Cement Co. of Allentown, Pa., in 1897 and began shipping Portland cement in 1898. These two men were intimately associated with the growth of this company from the time of its incorporation until their deaths, and have seen the original small organization expand to one having 16 cement mills in many sections of the country.

Holger Struckmann

Florida Phosphate Plant Installs New Washers

★ The American Agricultural Chemical Co. has installed four Niagara gyrating tube scrubbers at its No. 2 Carmichael phosphate washer at Durand, Fla. These are in addition to six scrubbers installed earlier in the year.

New Huron Storage Plant Received First Cement

★ The new storage and shipping plant of the Huron Portland Cement Co., Oswego, Ill., has been completed and the first cargo of cement was unloaded into it on Nov. 8 by the steamship S. T. Crapo which brought 35,000 bbl. of cement from the company's plant at Alpena. A Fuller-Kinyon pneumatic system conveys the cement from the boat to the silos which were built by the Burrell Eng. Co. and have a capacity of 75,000 bbl.

New Mica Plant Being Built in So. Carolina

★ The Marion Mica Mills, Inc., Marion, N. C., which was recently incorporated for $100 000, is building a plant to manufacture wet-ground mica. According to W. K. M. Gilkey, manager, the plant will be in operation within four weeks.

★ R. K. Kibblehouse, crushed-stone producer with a plant at Perkiomenville, Pa., recently installed a new Link-Belt vibrating screen to supplement two already in use.

Penna. Stone Men Meet To Discuss Problems

NEW RULES GOVERN PWA WORK

The Pennsylvania Stone Producers' Assn. held a meeting Nov. 8 at Harrisburg, Pa., which drew a large and representative group of producers. Among other business transacted Paul B. Reinhold, Pittsburgh, Pa., was elected secretary-treasurer, succeeding A. W. Chilton, formerly executive secretary, who recently resigned.

The main purpose of the meeting, however, was to obtain an interpretation from a representative of the Pennsylvania State Highway Dept. on the new set of rules and regulations developed by the department to govern highway construction and the purchase of materials under the $400,000,000 emergency program. These rules are entitled "Special Provisions Applicable to Purchase of Material by the Commonwealth of Pennsylvania for National Recovery Projects to be Constructed by Department Forces." A recent ruling by the U. S. Bureau of Public Roads permits the state to do this highway work with its own forces and to make or purchase its own materials, a practice which Pennsylvania has been following for the past several years.

When the $400,000,000 fund was first made available the U. S. Bureau of Public Roads ruled that this work was to be done by contractors who were to make or buy their own materials. Some states were even prohibited from buying cement and furnishing it to contractors.

P. C. A. Meeting Shows Optimism Prevailing

With greater optimism than has pervaded the cement industry for several years and with an attendance exceeding that of its recent similar affairs, the thirty-first annual meeting of the Portland Cement Assn. was held at the Blackstone Hotel, Chicago, Ill., Nov. 20, 21 and 22.

The occasion was forward-looking in every particular, and no section of the country or phase of the association's diversified field of activities seemed to have been overlooked, judging by attendance and program features. Technical and other committee sessions on Monday, Nov. 20, covered the range of current research and study in the field of cement manufacture and problems bearing on cement sacks and transportation. Tuesday's sessions, sponsored by the Committee on Promotion, were the high point of the meeting with a program featuring new uses, new methods, and new plans for expanding markets. The third day of the meeting was given over to a formal business session and a trip of inspection to the Baha'i Temple, a remarkable concrete religious edifice at Wilmette, Ill.

Editorials

Unbridled Competition

IT IS hard to believe that the days of unbridled competition, the kind that asked and gave no quarter, are gone. It is hard to believe that the pet theory of modern industrialism has been shattered, that the terrors of unrestrained individualism are ended, and that everything will be peaceful hereafter. It is hard to believe because it is too much to believe.

No one but an idle dreamer, wholly unaccustomed to the ways of men, could long harbor any such fantastic idea. No one experienced in the ways of business, certainly no one who prides himself on his understanding of what he thinks is human nature, could believe it. No change so abrupt and so transcending in its effects could be accomplished so quickly by any means known to man.

Yet, great changes are going on around us. Men who never talked in any but competitive terms are now discussing the possibilities of coöperation. Men who depended on the power of threats, collusion, terrorism and bribery, men who knew no other way of making their way in life except the path of forceful self-assertion, talk of conciliation, of coöperation, of persuasion and integrity.

The enormous costs of unbridled competition are being brought to our attention and understanding. The fearful burden on the general public—the public of which every industrialist, despite his belief in his invincible individualism and secure isolation from the effects of such conditions, is a member—is generally recognized, and everyone with even a faint sense of social responsibility feels that something should be done about it. Each year of the last decade has witnessed the birth of 218,000 new business enterprises and the death of 200,000, on the average. The losses occasioned by such a high commercial death-rate amount to billions of dollars, and they fall not alone on those immediately concerned but on the nation, on the patrons of those businesses as well as on those who sold to them. The losses, where they fell on the manufacturers, were recovered in part through increases in prices and these had the effect of checking further sales. Profits have been greatly reduced by the practices of quoting profitless prices, of offering unwarranted credit terms, of purchasing business through commercial bribery, and the like.

Unbridled competition in business is competition with no sense of public responsibility. It lacks even a sense of responsibility to its own interests as these are evaluated over a long period of time. Absentee ownership and the resultant placing of management in the hands of hired executives who had but a temporary interest in the ultimate outcome was largely responsible for the widespread worship of expediency, which emphasized the importance of the profit of the moment but neglected consideration of the profit of the future.

These principles are passing, for the conditions of the last few years have shown thinking men their falsity. Government is now insisting that the old code be scrapped and that a new one, founded on a regard for the common good and depending for its success on a coöperatively-managed control, be adopted. It is demanding that new thought be given to labor, to the basic principle that labor must be regularly employed and that it must be adequately paid, that national well-being depends on adequately-managed production of the commodities necessary for the sustenance of physical and cultural life.

Some Dangers in Code Administration

YOUR major industries in the nonmetallic-mineral field—crushed-stone, sand-and-gravel, slag and cement—are already at work under codes of fair competition approved by President Roosevelt. Several others of lesser importance, such as asbestos, slate, talc and soapstone, feldspar, and soft lime rock, either have already received or are likely soon to receive official sanction of their proposed plans of self-regulation. With premixed-concrete the only large industry of the field still awaiting government approval of its code, there is every reason to believe that the entire nonmetallic-mineral group will be working under N. R. A. codes by the end of the year.

The lime code, which was the first to win presidential approval, and several others encountered little difficulty. On the other hand, the mineral-aggregates code was the center of almost endless dispute between the industries which proposed it and other industries which felt that they would be damaged or destroyed by the limitations on new production and by other provisions of a similar nature which the tentative code set up. For many weeks it seemed almost impossible to reconcile the conflicting interests and at the same time satisfy the requirements of the National Recovery Administration.

Wholly apart from the actual working of the codes already approved, the very act of their official acceptance will be of immense benefit to the industries involved. Nothing is more debilitating or enervating than mental uncertainty, and that through which the aggregates industries have passed in recent months has been particularly distressing. In addition to the gloom of those who were wholly out of sympathy with the government's plan of industrial recovery and who, on that account, had nothing to contribute to the furtherance of that program, there was the disappointment of others who expected great benefits to accrue immediately but who saw their expectations gradually weaken as time passed. The tension was not, of course, relieved by the discovery that there were

groups and individuals who apparently sought to turn the code into a weapon of offense against competitors, who, on their part, believed that the code, if in harmony with the provisions of the National Industrial Recovery Act, should be designed to protect the industry as a whole and not to serve as an instrument of commercial oppression.

Despite these natural and inevitable differences of understanding and aims, a compromise plan was finally agreed upon and the code in its present form represents what is probably the best that could be prepared under the circumstances. Certainly its framers recognized the truth that no form of the code could be expected to be final, for in the very beginning provisions for amendment were a part of it. To this necessary and wise precaution has since been added a clause providing for the suspension of an entire section which contains what remains of the most controversial provisions of the orginal code. In its present form, therefore, the code is a flexible document representing the aims of living and changing industries, and whatever injustices a strict enforcement of its present provisions may cause may be eliminated by an intelligent utilization of the opportunity for change embodied in it.

In the beginning there is danger that too much importance may be attached to those provisions which have been designed to regulate production. The paragraphs which deal with this problem, while lacking most of the force that had been written into the original draft of them and therefore disappointing to those who expected the code to contain drastic means for preventing a recurrence of what they felt was the main cause of their industry's deplorable state, may for that very reason become the focal point of hasty and ill-considered action. A measure of control is provided by the existing provisions but it is a form of control that will be effective to the very degree to which it is moderately exercised. Attempted abuse of the power provided may awaken such a storm of protest as to render suspension of the provisions the inescapable duty of the Administrator. That is a possibility which all sincere friends of self-regulation by the industry will carefully avoid. The controversy which was brought about by the drastic provisions included in the original code has caused some of their original proponents to regret that they were ever put forward, and the same effect may follow similar attempts to overreach the bounds of good judgment in enforcing the code. The fact that attempts to make the original production-control provisions of the code effective were made before they had received official sanction, and the fact that, even before the provisions in their present form had been approved, several state maps illustrating the economic availability of aggregates in ample quantity are said to have been drawn in a way to show nothing but "permissive" areas merely enphasize the need for exercising caution in the application of the disciplinary powers set up in the code. This is certainly a case where conservatism and moderation are the better part of wisdom.

There is a growing feeling that the code's provisions dealing with this point are of little practical significance. The procedure established is somewhat complicated and indirect, when compared with the provisions first suggested; the decision as to whether or not the establishment of a new plant or the enlargement of the capacity of an existing one will be permitted now rests jointly upon those who might be favorably and those who might be adversely affected by it; and the right of appeal lies to the Administrator, who is a disinterested person, rather than to a group of those who could not fail to have an interest in the outcome. In approving the present provisions the National Recovery Administration undoubtedly recognized the soundness of the industry's claim to some form of protection against the unrestricted opportunity to engage in the business of producing aggregate when existing facilities were largely in excess of the probable demand for a long time to come, and it also doubtless saw the unwisdom of proscribing the technological advance of the industry, which must come largely through the building of more efficient new plants. And the danger of granting policing power on this point to those whose interests seemed to run almost always in the direction of prohibition and almost never in the direction of permission was also recognized, as is evidenced by the provision covering the election and composition of state committees, the provision covering appeals from their decisions, and the provision making possible the suspension of the entire clause dealing with permission. The code represents, we believe, a sincere effort on the part of the government to grant the kind of protection asked for, while preventing the abuses which could, and almost certainly would, have arisen in the exercise of the powers originally sought.

In our opinion the counsels of conservatism and moderation will prevail, in spite of the urgings of those who may seek to exercise a power greater than that authorized by the code. The danger of collusion between the normally-opposed members of state committees, although a possibility, is practically negligible. A careful consideration of their own interests as these may be affected in the long run will make the likelihood of presenting a united front against a prospective newcomer very small. While one type of committee member may always be opposed to the entrance of new producing factors into a given "permissive" area, his opponent, due to the very nature of his business, is almost certain to remain an opponent. He may not favor the new enterprise, but still he may not oppose it. The seventh member of the committee, who will very probably be a representative of the consumer interests, may be counted on in most cases to preserve the balance between prohibition and permission.

To adopt a policy of unvarying intolerance toward the newcomer and to map the country in such a way that there is nothing but "permissive" ground, either in a single state or in the country as a whole, will certainly defeat the objectives sought. It is for that reason that we believe in the restraining power of the soberer-minded producers, who will prefer the possibility of obtaining a modicum of relief to the certainty of obtaining none.

Government-Aided Highway Work Now in Progress Totals $129,060,000

Projects Advertised Will Cost $165,309,000 or 50.1 Per Cent. of $400,000,000 Provided

COMPLETION of 50 public-works highway projects up to Nov. 25, at a cost of $1,301,000 has been announced by the Bureau of Public Roads, U. S. Department of Agriculture, in a tabulation of highway construction. This work was completed under the Public Works Administration highway fund allotment provided for in the National Industrial Recovery Act.

Awards on 3,266 projects at a cost amounting to $165,309,000 have been made, out of a total of 4,239 projects advertised for contract amounting to an estimated expenditure of $213,551,000. On Nov. 25 the work advertised for contract or started by day labor employed by the highway authorities represented 50.1 per cent. of $400,000,000 provided for highways by the Public Works Administration under Sec. 204 of the National Industrial Recovery Act.

Highway work under construction by the states under Sec. 204 was employing directly on highway

STATUS OF PUBLIC-WORKS HIGHWAY PROGRAM, NOV. 25, 1933

PART I—WORK ADVERTISED FOR CONTRACT AND WORK AWARDED

State	Work Advertised for Contract (Including Force-Account Work)				Work Awarded (Including Force-Account Work)			
	Number of Projects	PWA Funds (Sec. 204)	Percentage of Allotment	Estimated Total Cost	Number of Projects	PWA Funds (Sec. 204)	Percentage of Allotment	Estimated Total Cost
Alabama	42	$ 2,747,000	32.8	$ 4,869,000	36	$ 2,199,000	26.3	$ 3,921,000
Arizona	27	2,757,000	52.9	2,757,000	22	2,408,000	46.2	2,408,000
Arkansas	38	1,255,000	18.6	1,835,000	26	1,050,000	15.6	1,473,000
California	86	7,578,000	48.6	9,611,000	62	6,035,000	38.7	7,320,000
Colorado	63	3,292,000	47.9	3,292,000	55	2,942,000	42.8	2,942,000
Connecticut	15	2,012,000	70.2	2,012,000	8	1,082,000	37.8	1,082,000
Delaware	26	1,130,000	62.1	1,333,000	16	674,000	37.1	674,000
District of Columbia	15	1,715,000	89.4	1,715,000	11	1,206,000	62.9	1,206,000
Florida	49	2,678,000	51.2	3,636,000	39	2,364,000	45.2	3,323,000
Georgia	39	1,302,000	12.9	1,302,000	12	466,000	4.6	466,000
Hawaii	11	834,000	44.6	1,120,000	6	586,000	31.3	803,000
Idaho	61	2,686,000	59.9	2,731,000	57	2,352,000	52.4	2,367,000
Illinois	115	6,601,000	37.6	6,601,000	50	2,674,000	15.2	2,674,000
Indiana	22	3,011,000	30.0	3,017,000	15	2,018,000	20.1	2,018,000
Iowa	121	6,553,000	65.2	6,956,000	106	6,028,000	59.9	6,397,000
Kansas	131	4,432,000	43.9	4,641,000	82	2,266,000	22.5	2,321,000
Kentucky	89	4,324,000	57.5	4,324,000	60	3,111,000	41.4	3,111,000
Louisiana	33	2,567,000	44.0	3,199,000	15	1,274,000	21.9	1,274,000
Maine	158	2,680,000	79.5	2,775,000	151	2,675,000	79.4	2,769,000
Maryland	20	921,000	25.8	935,000	6	834,000	23.4	848,000
Massachusetts	30	2,933,000	44.5	3,358,000	27	2,659,000	40.3	3,085,000
Michigan	101	4,845,000	38.0	4,847,000	67	3,419,000	26.8	3,421,000
Minnesota	205	5,729,000	53.8	5,736,000	184	5,593,000	52.5	5,600,000
Mississippi	33	1,060,000	15.2	1,612,000	19	819,000	11.7	1,192,000
Missouri	141	5,171,000	42.5	5,689,000	113	4,486,000	36.8	4,875,000
Montana	73	4,491,000	60.4	4,671,000	56	3,697,000	49.7	3,877,000
Nebraska	135	5,216,000	66.6	6,082,000	123	5,133,000	65.6	5,983,000
Nevada	20	2,404,000	52.9	2,424,000	17	2,091,000	46.0	2,111,000
New Hampshire	25	1,019,000	53.4	1,026,000	23	900,000	47.1	907,000
New Jersey	24	3,316,000	52.3	3,316,000	15	1,574,000	24.8	1,574,000
New Mexico	58	3,477,000	60.0	3,477,000	55	3,197,000	55.2	3,197,000
New York	209	20,810,000	93.2	21,513,000	164	16,387,000	73.4	17,086,000
North Carolina	83	2,674,000	28.1	3,644,000	70	2,144,000	22.5	2,770,000
North Dakota	125	2,619,000	45.1	2,631,000	86	1,954,000	33.7	1,954,000
Ohio	241	10,889,000	70.3	11,242,000	169	6,301,000	40.7	6,496,000
Oklahoma	71	4,082,000	44.3	4,082,000	60	3,444,000	37.4	3,444,000
Oregon	88	3,502,000	57.3	3,624,000	61	3,282,000	53.7	3,401,000
Pennsylvania	423	12,695,000	67.2	12,695,000	351	9,712,000	51.4	9,712,000
Rhode Island	14	1,170,000	58.5	1,170,000	8	947,000	47.4	947,000
South Carolina	54	2,480,000	45.4	2,483,000	37	2,036,000	37.3	2,039,000
South Dakota	79	2,511,000	41.8	2,647,000	63	2,053,000	34.2	2,088,000
Tennessee	52	2,072,000	24.4	2,647,000	28	1,391,000	16.4	1,966,000
Texas	270	9,636,000	39.7	12,270,000	208	7,680,000	31.7	9,908,000
Utah	79	3,135,000	74.7	3,137,000	70	2,803,000	66.8	2,805,000
Vermont	44	1,378,000	73.8	1,388,000	36	1,211,000	64.8	1,221,000
Virginia	98	3,722,000	50.2	3,853,000	58	2,244,000	30.3	2,270,000
Washington	65	3,158,000	51.6	3,177,000	52	2,383,000	39.0	2,397,000
West Virginia	52	2,164,000	48.4	2,164,000	42	2,008,000	44.9	2,008,000
Wisconsin	107	5,190,000	53.4	5,275,000	102	4,883,000	50.2	4,967,000
Wyoming	79	2,855,000	63.4	3,010,000	72	2,467,000	54.8	2,611,000
Totals	4,239	$197,478,000	50.1	$213,551,000	3,266	$153,142,000	38.9	$165,309,000

work a total of 134,805 men on Nov. 25. This force of men was divided between contract and day labor work as follows: 100,512 men on 1,890 contract projects and 34,293 men on 533 projects on which the labor is directly employed by the highway authorities.

The estimated total cost of the work under construction on Nov. 25 was $129,060,000, of which $116,525,000 was by contract and $12,535,000 was by day labor employed directly by the highway authorities.

Awards have been made on 77 per cent. of the projects approved by the district engineers of the Bureau of Public Roads, and construction is actually under way on 57 per cent. of the approved projects.

Analysis of the 4,128 jobs awarded by Nov. 18 shows the following classes of work: 1,820 projects on the Federal-aid highway system outside municipalities; 938 projects on extensions of the Federal-aid highway system into and through municipalities; 1,202 projects on secondary or feeder roads; and 168 projects on national park, forest and public-land highways.

Increase of employment is the primary purpose of the public-works highway projects. Widespread distribution of employment is assured by the Public Works Administration requirement that projects be undertaken in at least 75 per cent. of the counties in each state. Subject to the requirement of the widespread employment, transportation needs control the character of the projects. Emphasis is placed upon the elimination of traffic hazards, filling in gaps in the main highway system, the improvement of main route through cities, and the development of feeders to railroad and other transportation agencies. Among additional desirable projects are the widening of inadequate road surfaces, construction of sidewalks, and landscaping

(Continued on page 38)

STATUS OF PUBLIC-WORKS HIGHWAY PROGRAM, NOV. 25, 1933

PART II—WORK UNDER CONSTRUCTION AND WORK COMPLETED

State	Work Under Construction								Work Completed		
	By Force Account				By Contract						
	Number of Projects	PWA Funds (Sec. 204)	Estimated Total Cost	Number of Men Employed	Number of Projects	PWA Funds (Sec. 204)	Estimated Total Cost	Number of Men Employed	Number of Projects	PWA Funds (Sec. 204)	Estimated Total Cost
Alabama					27	$1,549,000	$2,808,000	647			
Arizona	1	$41,000	$41,000	70	20	2,368,000	2,368,000	1,570			
Arkansas	1	5,000	5,000	40	11	444,000	761,000	610			
California	3	107,000	120,000	190	53	5,302,000	6,358,000	2,903			
Colorado	19	649,000	649,000	303	23	1,559,000	1,559,000	1,564	2	$132,000	$132,000
Connecticut					5	810,000	810,000	169			
Delaware					14	674,000	674,000	867			
Dist. of Col	1	28,000	28,000	60	7	1,089,000	1,089,000	669			
Florida	4	52,000	52,000	87	29	1,911,000	2,837,000	819			
Georgia					9	245,000	245,000	139			
Hawaii					3	206,000	423,000	418			
Idaho	17	570,000	572,000	888	28	1,683,000	1,691,000	1,476	4	57,000	62,000
Illinois					22	1,220,000	1,220,000	456			
Indiana	4	201,000	201,000	127	11	1,372,000	1,372,000	746			
Iowa					80	5,555,000	5,897,000	5,673	1	10,000	10,000
Kansas					49	1,742,000	1,742,000	1,834			
Kentucky					30	1,784,000	1,784,000	951			
Louisiana					11	855,000	855,000	733			
Maine	102	890,000	934,000	6,310	30	1,232,000	1,240,000	1,965			
Maryland					2	159,000	173,000	47			
Massachusetts					23	1,815,000	2,240,000	2,386			
Michigan					44	2,021,000	2,023,000	1,819			
Minnesota	5	965,000	965,000	305	135	3,340,000	3,348,000	6,779			
Mississippi	5	435,000	435,000	162	13	367,000	728,000	355			
Missouri					72	3,429,000	3,735,000	1,758			
Montana	2	70,000	70,000	89	52	3,349,000	3,529,000	2,051	2	16,000	16,000
Nebraska	21	671,000	688,000	666	64	3,382,000	4,125,000	3,380	14	90,000	102,000
Nevada	3	70,000	90,000	140	14	1,464,000	1,464,000	1,261	1	24,000	24,000
New Hampshire	3	77,000	77,000	144	15	769,000	776,000	1,072			
New Jersey					9	1,385,000	1,385,000	1,104			
New Mexico	10	462,000	462,000	75	27	2,280,000	2,280,000	1,304	1	101,000	101,000
New York	1	100,000	100,000	35	138	14,316,000	14,686,000	8,189			
North Carolina					55	1,214,000	1,789,000	3,379			
North Dakota					53	1,170,000	1,170,000	2,568	5	61,000	61,000
Ohio	52	417,000	417,000	2,442	81	5,748,000	5,944,000	6,223			
Oklahoma					52	2,502,000	2,502,000	1,931			
Oregon					36	2,121,000	2,151,000	1,282	8	124,000	142,000
Pennsylvania	213	4,109,000	4,109,000	18,518	37	2,161,000	2,161,000	2,389			
Rhode Island					8	948,000	948,000	373			
South Carolina	4	464,000	464,000	82	24	972,000	975,000	707			
South Dakota	2	53,000	53,000	104	58	1,934,000	1,969,000	3,009			
Tennessee					15	804,000	1,228,000	819			
Texas	1	74,000	99,000	125	114	4,695,000	5,970,000	8,120			
Utah	18	863,000	863,000	958	34	1,364,000	1,366,000	2,014	15	379,000	379,000
Vermont	18	337,000	345,000	1,267	14	683,000	685,000	967	1	38,000	38,000
Virginia	12	206,000	206,000	738	40	1,735,000	1,760,000	1,933			
Washington					47	1,734,000	1,738,000	1,669			
West Virginia					27	1,735,000	1,735,000	1,583			
Wisconsin	5	195,000	195,000	278	82	4,275,000	4,359,000	4,728			
Wyoming	6	295,000	295,000	90	43	1,717,000	1,850,000	1,104	5	222,000	234,000
Totals	533	$12,406,000	$12,535,000	34,293	1,890	$107,188,000	$116,525,000	100,512	59	$1,254,000	$1,301,000

Aggregates Code, Approved by President, Now Effective Among Producers

Establishes 40-Hour Week and Hourly Wage Minima of 25, 30 and 40 Cents

PERMISSION to adopt the open-price policy, which contemplates selling at "prime plant cost" plus 10 per cent., is the heart of the code for the crushed-stone, sand-and-gravel, and slag industries approved Nov. 11 by President Roosevelt. The code became effective Nov. 21.

The policy may be adopted at the option of the district committees set up under the code, subject to approval of the regional committees and of the code authority. It contemplates computation of prime plant cost in accordance with the standard uniform accounting and costing system for the industry in which the producer is engaged. This will include all items of cost, exclusive of the return on the capital invested, interest on borrowed capital, depreciation, depletion, administration, selling costs, and reserves.

In districts where the policy is adopted all producers must file with the district committees, at least 5 days in advance of their effective date, all prices, terms and conditions of sale.

The code is to be administered primarily by district committees, then by regional committees, one for each of 16 regions into which the country is divided. The code authority is to act as the supreme court of the industries. This code authority shall consist of members representing each region to be elected by the regional committees and of from one to three members to be named by the President.

Complaints or controversies involving labor, the consuming interests or groups outside the industries which can not be satisfactorily settled by the code authority will be handled by an arbitration board to consist of equal representation from each of the groups involved, with a neutral arbiter selected by the other members.

Child labor is prohibited by the code, which also includes provisions for development of standards of safety, the active support of accident-prevention programs and the carrying of employees, compensation insurance.

A basic 40-hr. week is established by the code, which also permits certain exempted employees to work 48 hr.

A minimum wage of 25 c. an hour is established for Alabama, Florida, Georgia, Mississippi, and South Carolina; 30 c. for Arizona, Arkansas, Kentucky, Louisiana, New Mexico, North Carolina, Oklahoma, Tennessee, Texas, Virginia, and the eastern part of West Virginia; and 40 c. an hr. for the remainder of the country.

Organization of the industries governed by the mineral-aggregates code is proceeding rapidly. Until the regional organization can be completed and the Code Authority elected, the Committee on Organization, which carried on the negotiations dealing with the revision and presentation of the code since its appointment at the Chicago Meeting in July, will serve as the Temporary Code Authority. At its last meeting this body appointed temporary committees for each region and they are to arrange the regional meetings at which the permanent organizations will be perfected. The purpose of these meetings is explained in the following extracts from a letter sent to producers in each of the 16 regions by Otho M. Graves, chairman of the Committee on Organization.

Notice of Regional Meeting.—It is the duty of this temporary regional committee to select a convenient place and date in the near future for the meeting of all producers within your region. We are so advising every producer in the region on the mailing list of our associations. You will be advised by the temporary regional committee as to the place and date selected. However, in order that no one may be inadvertently overlooked, we suggest that you communicate with the producers in any one of the three industries in your immediate vicinity asking if they have received a copy of this letter. If a copy has not been received, request them to send their name and address to the secretary of the association of their industry, and also impress upon them the urgent advisability of their attending the meeting above referred to. It is highly important that every producer in your region attend this meeting preferably in person but at least by proxy, and to that end we earnestly seek your cooperation.

Registering.—Every producer in any one of the three industries who produces within the region is eligible to attend this meeting and upon registration to vote upon such questions as may arise, including the election of the regional committee. In order to register, it is necessary only to sign a compliance form which will be furnished, thereby assenting to the provisions of the code. No fees will be charged for this registration.

Voting.—The code provides that only registered producers are entitled to participate in and share the benefits of the activities of the Code Authority and of other committees established in the code and to participate in the selection of members thereof. All members of these industries are governed by the provisions of the code whether or not registered as the code has all the force, effect and power of a Federal statute. However, the foregoing privileges are offered to registered producers only. For further particulars concerning registered producers refer to Article VI, Sec. 4, Subsec. (c); Article VI, Sec. 7, Subsec. (b); and Article VI, Sec. 10 of the code. The method of voting within a region shall be as set forth in Article VI, Sec. 7, Subsec. (c) in the code to which, in this connection we specifically call your attention.

Tonnage Affidavits.—In order for each producer to vote, if registered, in accordance with the foregoing article and section, it is necessary that each eligible voting producer submit a sworn affidavit accurately setting forth the tonnage produced, sold, and shipped from his plant, or plants, within the region (even though his plant, or plants, may have been owned and/or operated during some portion of this period by another owner) during each year from 1928 to 1932, inclusive. If his plant, or plants, have been operated for less

than 5 yr., or in 1933 only, then the sworn affidavit should cover the tonnage produced, sold, and shipped for each of the years during which the plant, or plants, have been operated. These sworn affidavits should be presented to the Credentials Committee. This committee will examine sworn affidavits presented in person or by proxy, and will assign to each registered producer the weighted vote to which he is entitled, as prescribed in Article VI.

Proxies.—A producer unable to attend this meeting may delegate his authority to vote to any other person, or persons, present at the meeting by accrediting such representative or representatives with a written proxy duly delegating that person or persons to vote for him and also furnish to this person or persons the sworn affidavit above referred to as to tonnage, and further duly authorizing his representative or representatives to sign in his behalf the Compliance Form whereby he becomes a registered producer entitled to vote.

Credentials Committee.—Upon calling the meeting to order the chairman should immediately appoint a Credentials Committee for the purpose of examining such sworn affidavits as to tonnage and such proxies as may be presented. If in the judgment of the Temporary Regional Committee for the region it is desirable to have the sworn affidavits as to tonnage presented to previously-appointed Credentials Committee so that this work may be conducted prior to the meeting itself, it may be so ordered. At the earliest opportunity the Credentials Committee should report with respect to the number of votes to which each producer present, either in person or by proxy, is entitled in the weighted voting.

Temporary Committees.—If the Temporary Regional Committee deems it advisable, it may appoint prior to the regional meeting, and for report to that meeting, temporary committees, such as, Credentials Committee, Nominating Committee, Committee on Districting, and such others as would tend to assist the regional meeting in consideration of these and other matters.

Number of Regional Committees.—Immediately thereafter the meeting should proceed with the election of a Regional Committee to consist of that number of persons as prescribed in Article VI, Sec. 4, Subsec. (d). In determining the numerical number of the committee, each registered producer is entitled to one vote and weighted voting is not permitted as to this matter.

Industry Meetings.—After the meeting has determined the number of persons who shall serve on the Regional Committee, it is suggested that each industry represented at the meeting hold separate industry meetings for the purpose of electing their assigned number of representatives to the Rgional Committee. In electing these industry members to the Regional Committee the voting shall be in accord with Article VI, Sec. 7, Subsec. (c).

State Meetings.—When each industry has in this manner elected its representatives to the Regional Committee, the chairman of the Temporary Regional Committee should then request that the producers of each of the states composing the region hold separate state meetings for the purpose of electing State Committees as specified in Article VII, Sec. 5, Subsec. (a). The Credentials Committee should furnish for the separate industry meetings and for the separate state meetings a list of registered producers eligible to vote in both these meetings.

Regional Committee Meetings.—Upon the completion of the election of the State Committees the general meeting should be reconvened to transact such other business as may properly come before it. Upon the adjournment of this meeting the Regional Committee should immediately meet and organize by the election of a Regional Committee chairman and secretary. It should also elect one representative from each industry represented on the Regional Committee to serve as a member of the Code Authority.

Districting.—The Regional Committee at its own meeting or at the general meeting of the producers of the region, as above mentioned, may consider the recommendation of marketing groups concerning the division of the region into districts and may take such steps to effectuate districting as may seem wise to the general meeting or to the Regional Committee.

In this connection it should be borne in mind that the district is formed as a result of the voluntary desire of the marketers in any given marketing area to form a district subject to the approval of the Regional Committee. The Regional Committee should be mindful of this right of the marketers in any given area, but it should nevertheless be alert to its responsibility of assisting producers throughout the region in forming districts with due regard to competitive conditions and to prevent overlapping districts. It should also bear in mind that districts may be a part of more than one region. In this connection it should be noted that representation in a district is dependent upon marketing within that district and not upon production, whereas representation in a region is dependent upon production.

Information to Code Authority.—As promptly as possible the Regional Committee should submit the following data to the chairman of the Committee on Organization, which committee will act as Code Authority until the duly-constituted Code Authority is able to function:

1. The names and addresses of the members of the Regional Committee, indicating the chairman and secretary.
2. The names and addresses of the representatives elected to serve on the Code Authority.
3. The names and addresses of all those in attendance at the general meeting or represented by proxy.
4. The names and addresses of all registered producers, together with their certified tonnages.
5. Such further information as might appear to be helpful to the Committee on Organization.

Acting Code Authority.—Article VI, Sec. 8, on *Right of Appeal*, places upon the Regional Committee the duty of hearing appeals from decisions of district committees and further states that an appeal from any decision by a Regional Committee may be taken to the Code Authority or its accredited representative. Pending the formation and functioning of the Code Authority the Committee on Organization will hear appeals from regional committees and perform such other duties as are assigned to the Code Authority. Upon the establishment of the Code Authority, and at such time as it is able and ready to discharge the duties assigned to it, the Organization Committee will automatically cease to exist.

The Temporary Code Authority, identical in membership with the Committee on Organization, is headed by Otho M. Graves (General Crushed Stone Co.), chairman. The vice-chairman is Alex. Foster, Jr. (Warner Co.), and the secretary is V. P. Ahearn (executive secretary, National Sand & Gravel Assn.). The other members are: J. R. Boyd (secretary, National Crushed Stone Assn.), R. C. Fletcher (Flint Crushed Gravel Co.), C. E. Ireland (Birmingham Slag Co.), H. J. Love (secretary-treasurer, National Slag Assn.), C. L. McKenzie (Duquesne Slag Products Co.), H. V. Owens (Eastern Rock Products, Inc.), Robert J. Potts (Potts-Moore Gravel Co.), John Prince (Stewart Sand & Material Co.), Russell Rarey (Marble Cliff Quarries Co.), W. R. Sanborn (Lehigh Stone Co.), Stirling Tomkins (New York Trap Rock Co.), F. J. Twaits (Consolidated Rock Products Co.), and A. L. Worthen (Connecticut Quarries Co.).

The work of holding regional meetings is progressing rapidly. Several meetings have already been held and others are scheduled. Among the former are:

Region 5. Nov. 27, at Birmingham, Ala.
Region 12. Nov. 27-28, at Omaha, Neb.

The following meetings are scheduled for December:

Region 2. Dec. 5, at Syracuse, N. Y. (Producers in New York. Contact man, H. V. Owens, Eastern Rock Products, Inc., 404 Court St., Utica, N. Y.)

Region 4. Dec. 11, at Washington, D. C. (Producers in West Virginia, Virginia, Maryland, and the District of Columbia. Contact man, W. A. Smoot, Smoot Sand & Gravel Co., 3020 K St., N. W., Washington, D. C.)

Region 7. Dec. 5 or 6, place not announced. (Producers in Arkansas, Louisiana and Texas. Contact man, Robert J. Potts, Potts-Moore Gravel Co., 1410 Amicable Bldg., Waco, Tex.)

Region 9. Dec. 11-12, at Chicago. (Producers in Illinois and Indiana. Contact man, W. R. Sanborn, Lehigh Stone Co.,. Kankakee,. Ill.)

Region 10. Dec. 14, at Chicago, Ill. (Producers in Michigan and Wisconsin. Contact man, J. C. Buckbee, Northern Gravel Co., West Bend, Wis.)

Region 15. Dec. 4, at Fresno, Cal. (Producers in California and Nevada. Contact man, F. J. Twaits, Consolidated Rock Products Co., 2730 S. Alameda St., Los Angeles, Cal.)

The code in its final form, as approved by President Roosevelt, follows:

CODE OF FAIR COMPETITION FOR THE CRUSHED-STONE, SAND-AND-GRAVEL, AND SLAG INDUSTRIES

ARTICLE I—PURPOSES

To effectuate the policies of Title I of the National Industrial Recovery Act the following provisions are established as a Code of Fair Competition for the crushed-stone, sand-and-gravel, and slag industries and for such other industries as with the approval of the President may be governed by its provisions, and shall be binding upon every member thereof.

ARTICLE II—DEFINITIONS

SEC. 1. *Industries.*—The term "industries" as used herein includes the quarrying, and/or crushing, and/or processing, and/or recovering of stone, sand, gravel, and/or slag for any or all purposes, and the producing and/or processing for any or all purposes of the products of such other industries as with the approval of the President may from time to time be governed by the provisions of this code.

SEC. 2. *Employee.*—The term "employee" as used herein includes any person engaged in the industries in any capacity receiving compensation for his services, irrespective of the nature or method of such compensation.

SEC. 3. *Employer.*—The term "employer" as used herein includes anyone by whom any such employee is compensated or employed.

SEC. 4. *Member of the Industries.*—The term "member of the industries" as used herein includes anyone engaged in the industries as above defined, either as an employer or on his own behalf.

SEC. 5. *Producers.*—(a) *Crushed-Stone Producer.*—The term "crushed-stone producer" as used herein includes any member of the industries engaged in the quarrying, and/or crushing, and/or processing of stone for any or all purposes.

(b) *Sand-and-Gravel Producer.* — The term "sand-and-

TEMPORARY REGIONAL COMMITTEES

REGION NO. 1

(Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island)

A. L. Worthen, contact man
Connecticut Quarries Co., Inc., New Haven, Conn.
Paul P. Bird
Boston Sand & Gravel Co., Cambridge, Mass.
R. A. McKinney
West Roxbury Trap Rock Co., Roxbury, Mass.
A. I. Merigold
Whitemore Sand & Gravel Co., Roslindale, Mass.
C. G. Bridge
Hazardville, Conn.

REGION NO. 2

(New York)

H. V. Owens, contact man
Eastern Rock Products, Inc., Utica, N. Y.
Anderson Dann
Seaboard Sand & Gravel Co., New York, N. Y.
Otho M. Graves
General Crushed Stone Co., Easton, Pa.
Harris N. Snyder
Buffalo Slag Corp., Buffalo, N. Y.
Stirling Tomkins
New York Trap Rock Corp., New York, N. Y.
John Arborio
Poughkeepsie, N. Y.

REGION NO. 3

(Pennsylvania, New Jersey and Delaware)

Alexander Foster, Jr., contact man
Warner Co., Philadelphia, Pa.
Alex. W. Dann
Keystone Sand & Supply Co., Pittsburgh, Pa.
S. F. Dixon
Lambertville Trap Rock Co., Lambertville, N. J.
F. O. Earnshaw
Carbon Limestone Co., Youngstown, Ohio.
Otho M. Graves
General Crushed Stone Co., Easton, Pa.
Hugh Haddow, Jr., Menantico Sand & Gravel Co., Millville, N. J.
C. L. McKenzie
Duquesne Slag Products Co., Pittsburgh, Pa.
Watson Bowser
Kittanning, Pa.

REGION NO. 4

(West Virginia, Virginia, Maryland and District of Columbia)

W. A. Smoot, contact man
Smoot Sand & Gravel Corp., Washington, D. C.
L. J. Boxley
W. W. Boxley Co., Roanoke, Va.
Bruce C. Campbell
Harry T. Campbell Sons Co., Towson, Md.
J. J. Hock
Arundel Corp., Baltimore, Md.
A. B. Rawn
Wilson Sand & Supply Co., Huntington, W. Va.
J. A. Rigg
Acme Limestone Co., Alderson, W. Va.
C. L. Ruffin
Massaponax Sand & Gravel Co., Fredericksburg, Va.
R. L. Lambert
Richland, Va.

REGION NO. 5

(South Carolina, Georgia, Alabama, Florida and Mississippi)

C. E. Ireland, contact man
Birmingham Slag Co., Birmingham, Ala.
E. A. Dawes
Dawes Construction Supply Co., Thomasville, Ga.
E. F. Fitch
Camp Concrete Rock Co., Jacksonville, Fla.
S. H. Livingston
Southern Sand & Gravel Co., Columbus, Miss.
T. I. Weston
Weston & Brooker Co., Columbia, S. C.
W. Norris Harris
163 Clifton Street, Atlanta, Ga.

REGION NO. 6

(North Carolina, Kentucky and Tennessee)

H. E. Rodes, contact man
Franklin Limestone Co., Nashville, Tenn.
H. P. Caldwell
Ohio River Sand Co., Louisville, Ky.
R. N. Coolidge
Cumberland River Sand Co., Nashville, Tenn.
T. W. Havely
Central Rock Co., Inc., Lexington, Ky.
Lee T. McCourt
Camden Gravel Co., Camden, Tenn.
Thos. McCroskey
American Limestone Co., Knoxville, Tenn.
E. U. Clint Ragland
Raleigh Granite Co., Raleigh, N. C.
Collier Cobb, Jr.
Chapel Hill, N. C.

REGION NO. 7

(Arkansas, Louisiana and Texas)

R. J. Potts, contact man
Potts-Moore Gravel Co., Waco, Tex.
Walter W. Dills
Arkhola Sand & Gravel Co., Ft. Smith, Ark.
E. Eikel
Servtex Materials Co., New Braunfels, Tex.
Walter Jahneke
Flint Sand & Gravel Co., Inc., New Orleans, La.
W. F. Wise
Southwest Stone Co., Dallas, Tex.
M. O. Weaver
Marshall, Ark.

REGION NO. 8

(Ohio)

Russell Rarey, contact man
Marble Cliff Quarries Co., Columbus, Ohio.
W. E. Bliss
Standard Slag Co., Youngstown, O.
Harry H. Brandon
C. C. Beam, Melvin, O.
Fred Coppock
American Aggregates Corp., Greenville, O.
Stephen Stepanian
Arrow Sand & Gravel Co., Columbus, O.
Lee O. Shaw
Coshocton, O.

REGION NO. 9

(Illinois and Indiana)

W. R. Sanborn, contact man
Lehigh Stone Co., Kankakee, Ill.
Norman Kelb
Ohio & Indiana Stone Co., Indianapolis, Ind.
E. J. Krause
Columbia Quarry Co., St. Louis, Mo.
L. E. McDermut
Illinois Slag & Ballast Co., Chicago, Ill.
T. E. McGrath
McGrath Sand & Gravel Co., Lincoln, Ill.
M. A. Neville
Western Indiana Gravel Co., Lafayette, Ind.

gravel producer" as used herein includes any member of the industries engaged in the recovering and/or processing of sand, and/or gravel for any or all purposes.

(c) *Slag Producer.*—The term "slag producer" as used herein includes any member of the industries engaged in the recovering and/or processing of slag resulting from furnace or smelting operations for any or all purposes.

(d) *Registered Producer.*—The term "registered producer" as used herein includes any producer as above defined, who has assented to this code and has complied with the other provisions of Sec. 4 (c) of Article VI of this code.

SEC. 6. *Region.*—The term "region" as used herein includes any one of the several parts of the United States established as hereinafter set forth in Article VI of this code.

SEC. 7. *District.*—The term "district" as used herein includes any subdivision of any region or regions established as provided for hereinafter.

SEC. 8. *Division.*—The term "division" as used herein includes those members of the industries engaged primarily in the production of one type or class of industry products, so specialized in nature as to warrant the establishment of a division.

SEC. 9. *Marketer.*—The term "marketer" as used herein includes any registered producer selling products of the industries in any district.

SEC. 10. *Effective Date.*—The term "effective date" as used herein shall mean the beginning of the tenth day after the approval of this code by the President.

SEC. 11. *President, Act, and Administrator.*—The terms "President," "Act," and "Administrator" as used herein shall mean respectively the President of the United States, the National Industrial Recovery Act, and the Administrator of Title I of said Act.

ARTICLE III—HOURS

SEC. 1. *Working Time.*—No employee, except as set forth in this article and in Article IV, shall be permitted to work in excess of 40 hr. in any one week.

SEC. 2. *Exceptions.*—The maximum hours specified in Sec. 1 of this article shall not apply to commercial travelling salesmen; or to employees engaged in executive or managerial or clerical capacities who receive not less than $35 per week; or to the following employees:

(a) Employees working as crews on floating equipment engaged solely in dredging and/or transportation on navigable waters, provided the Code Authority as set up in Article VI of this code shall prepare and submit, not later than Jan. 1, 1934, a schedule of minimum wages and maximum hours for such employees, and upon the approval of the Administrator such schedule shall at once become effective.

TEMPORARY REGIONAL COMMITTEES *(continued)*

A. C. O'Laughlin
Consumers Co., Chicago, Ill.
Geo. W. Renwick
Chicago Gravel Co., Chicago, Ill.
E. Guy Sutton
Neal Gravel Co., Mattoon, Ill.
Chas. Rosenbarger
1121 Peoples Bank Bldg., Indianapolis, Ind.

REGION NO. 10
(Michigan and Wisconsin)

J. C. Buckbee, contact man
Northern Gravel Co., West Bend, Wis.
H. N. Battjes
Grand Rapids Gravel Co., Grand Rapids, Mich.
A. J. Blair
Lake Shore Sand & Stone Co., Milwaukee, Wis.
Gordon Daggett
Wisconsin Materials Assn., Milwaukee, Wis.
K. A. Dietrich
Great Lake Steel Corp., Ecorse, Detroit, Mich.
M. G. Kerr
American Aggregates Corp., Detroit, Mich.
John G. Munson
Michigan Limestone & Chemical Co., Rogers City, Mich.
N. K. Wilson
Cunningham & Ortemeyer, Michigan Ave., Milwaukee, Wis.

REGION NO. 11
(North Dakota, South Dakota and Minnesota)

J. L. Shiely, contact man
J. L. Shiely Co., St. Paul, Minn.
C. D. Brewer
Duluth Crushed Stone Co., Duluth, Minn.
E. W. Hallet
Hallet Construction Co., Crosley, Minn.
J. W. Parmley
Ipswich Sand & Gravel Co., Ipswich, S. Dak.
John Wunder
Trap Rock Co., Minneapolis, Minn.
C. H. Young
C. H. Young Co., Minneapolis, Minn.
S. J. Reader
Reader Sand & Gravel Co., Minneapolis, Minn.

REGION NO. 12
(Nebraska and Iowa)

R. C. Fletcher, contact man
Flint Crushed Gravel Co., Des Moines, Ia.
H. D. Bellamy
Concrete Materials Corp., Waterloo, Ia.
H. F. Curtis
Lyman-Richey Sand & Gravel Co., Omaha, Neb.
Paul Nauman
Dubuque Stone Products Co., Dubuque, Ia.
J. F. Schroeder
Linwood Cement Co., Davenport, Ia.
Wm. Stoner
Western Sand & Gravel Co., Lincoln, Neb.
H. R. Maudlin
Nevada, Ia.

REGION NO. 13
(Kansas, Missouri and Oklahoma)

John Prince, contact man
Stewart Sand & Material Co., Kansas City, Mo.
M. Moss Alexander
Missouri Portland Cement Co., St. St. Louis, Mo.
J. M. Chandler
Hughes Stone Co., Tulsa, Okla.
C. G. Cooley
Cooley Gravel Co., Chillicothe, Mo.
Walter W. Dills
Yahola Sand & Gravel Co., Muskogee, Okla.
Henry Dolese
Dolese Bros. Co., Oklahoma City, Okla.
N. C. Dunn
Arkansas City Sand & Gravel Co., Arkansas City, Kan.
Scott Fones
Joplin, Mo.
F. M. Horn
Topeka, Kan.
L. H. Lewis
Emporia, Kan.
Frank Peck
Peck-Thompson Sand & Material Co., Kansas City, Mo.
Ben Reynolds
Independent Gravel Co., Joplin, Mo.
W. E. Searight
Independent Sand & Gravel Co., Wichita, Kan.
M. M. Small
Victory Sand Co., Topeka, Kan.
R. J. Stewart
Pioneer Sand Co., St. Joseph, Mo.
M. W. Watson
Topeka, Kan.
H. E. West
West Sand Co., Muskogee, Okla.

REGION NO. 14
(Wyoming, Colorado, New Mexico, Utah and Arizona)

F. P. Spratlin, contact man
J. W. Brannan Sand & Gravel Co., Denver, Colo.
L. C. Bennett
Springer Transfer Co., Albuquerque, N. Mex.
D. W. Kelley
Arizona Sand & Rock Co., Phoenix, Ariz.
Eric Ryberg
Utah Sand & Gravel Products Corp., Salt Lake City, Utah
John E. Whisenand
Green River Sand Pits, Green River, Wyo.
James Kenney
525 Cooper Bldg., Denver, Colo.

REGION NO. 15
(California and Nevada)

F. J. Twaits, contact man
Consolidated Rock Products Co., Los Angeles, Cal.
Anson Blake
Blake Bros. Co., San Francisco, Cal.
C. M. Cadman
Pacific Coast Aggregates Co., San Francisco, Cal.
Garvin Pelsue
Graham Bros. Co., Long Beach, Cal.
W. F. Blaikie
Imperial Rock Corp., Los Angeles, Cal.

REGION NO. 16
(Montana, Washington, Oregon and Idaho)

Porter W. Yett, contact man
City Motor Trucking Co., Portland, Ore.
Robert H. Gross
East Butte Copper Mining Co., Butte, Mont.
Geo. F. Jacoby
Helena Sand & Gravel Co., Helena, Mont.
Daniel Kern
Columbia Contract Co., Portland, Ore.
Samuel R. Norton
Limestone Products Co., Northport, Wash.
H. F. Puarica
Portland Gravel Co., Portland, Ore.
D. L. Williams
Pioneer Sand & Gravel Co., Seattle, Wash.
Howard Toole
Missoula, Mont.

(b) Employees engaged in clerical or office work, provided the total working hours of such employees shall not exceed 42 hr. per week averaged over any 3 mo. in any 6-mo. period, or 6 days in any one week.

(c) Employees engaged in outside delivery service, provided the total working hours of such employees shall not exceed 48 hr. in any one week.

(d) Employees engaged in emergency repair work involving breakdowns or protection of life or property, comprising not more than 5 per cent. of the total number of employees, provided the total working hours of such employees shall not exceed 48 hr. in any one week.

(e) Employees engaged as watchmen, provided the total working hours of such employees shall not exceed 60 hr. in any one week.

Article IV—Wages

Sec. 1. *Rates of Pay.*—(a) No employee, except as hereinafter set forth, shall be paid less than the hourly rates specified in the following schedule which is made a part of this code:

(1) Alabama, Florida, Georgia, Mississippi, South Carolina	$0.25
(2) Arizona, Arkansas, Kentucky, Louisiana, New Mexico, North Carolina, Oklahoma, Tennessee, Texas, Virginia, West Virginia east	.30
(3) California, Colorado, Connecticut, District of Columbia, Delaware, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Dakota, Ohio including all operations on Ohio River, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, Washington, West Virginia west, Wisconsin, Wyoming	.40

(b) For the purposes of Par. (a) of this section, "West Virginia east" shall be the part of West Virginia south and east of a straight line drawn between the intersection of the boundries of the states of Kentucky, Virginia, and West Virginia and the point farthest south on the western boundary of Maryland; and "West Virginia west" shall be the remainder of the state of West Virginia.

(c) Employees engaged solely as water boys, comprising not more than 4 per cent. of the total number of employees, (but in any case there may be at least one water boy) may be paid at not less than 80 per cent. of the hourly wages prescribed herein.

(d) This section establishes a minimum rate of pay, regardless of whether an employee is compensated on a time rate, piece-work, or other basis.

(e) To the extent practicable weekly earnings shall not be decreased, notwithstanding that hourly work may be reduced, and rates of pay for occupations in excess of the minimum herein prescribed shall be increased so as to maintain differences in full-time weekly earnings existing on July 15, 1933.

(f) No employee working on an hourly basis shall be paid less than one and one-third times his hourly rate for all time in excess of the maximum weekly hours prescribed herein.

Sec. 2. *Salaried Employees.*—(a) No accounting, clerical, or office employee shall be paid less than the rate of $15 per week in any city of 500,000 or more population, or in the immediate trade area of such city; or less than the rate of $14 per week in any city between 100,000 and 500,000 population, or in the immediate trade area of such city; or less than $13 per week in any city between 2,500 and 100,000 population, or in the immediate trade area of such city; or less than $12 per week in any city under 2,500 population. Population for the purposes of this paragraph shall be determined by reference to the 1930 Federal Census.

(b) No watchman paid on a weekly basis shall be paid at less than the rate of $13 per week in the states listed in Par. (1) and (2) of Sec. 1 (a) of this article; or at less than the rate of $14 per week in the states listed in paragraph (3) of Sec. 1 (a) of this article.

Sec. 3. *Method of Payment.*—(a) An employer shall make payment of all wages due in lawful currency or by negotiable check therefor, payable on demand. Wages of employees paid on an hourly basis shall be paid at least twice a month and salaries at least once a month. These wages shall be exempt from any payments for pensions, insurance, or sick benefits other than those voluntarily paid by wage earners.

(b) The employer or his agents shall accept no rebates, directly or indirectly, on such wages nor give anything of value or extend favors to any person for the purpose of influencing rates of wages or the working conditions of his employees.

Article V—Labor Provisions

Sec. 1. *Child Labor.*—No person under 16 yr. of age shall be employed in the industries, or anyone under 18 yr. of age at operations or occupations hazardous in nature or detrimental to health. The Code Authority as hereinafter established shall submit to the Administrator not later than Jan. 1, 1934, a list of such occupations. In any state an employer shall be deemed to have complied with this provision if he shall have on file a certificate or permit duly issued by the authority in such state empowered to issue employment or age certificates or permits showing that the employee is of the required age.

Sec. 2. *Rights of Labor.*—(a) Employees shall have the right to organize and bargain collectively through representatives of their own choosing and shall be free from the interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection.

(b) No employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing; and

(c) Employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President.

Sec. 3. *Labor Protection.*—(a) Within each state this code shall not supersede any laws of such state imposing more stringent requirements on employers regulating the age of employees, wages, hours of work, or health, fire, or general working conditions than prescribed in this code.

(b) No employer shall reclassify employees or duties of occupations performed for the purpose of defeating the provisions of the Act or of this code.

(c) Each employer shall post in conspicuous places full copies of this code.

(d) Each employer shall provide for the health and safety of his employees while engaged in the discharge of their duties. He shall protect his employees by workmen's compensation insurance, according to the amounts required in the state of jurisdiction or the United States Employees' Compensation Insurance, if that state has not established a compensation scheme for these industries.

Sec. 4. *Accident Prevention.*—Every producer governed by this code shall lend his cooperation and active support to the program of his trade association for the reduction of accidents in the conduct of his operations. No producer shall be permitted to expose his employees to unnecessarily dangerous working hazards and cases of culpable disregard of the life and health of employees shall constitute a violation of this code. The Code Authority as hereinafter established shall present to the Administrator within 6 mo. after the effective date, such standards of safety as in its judgment will further the purposes of this section.

Sec. 5. *Company Facilities.*—(a) Employees other than maintenance or supervisory men, or those necessary to protect the property, shall not be required, as a condition of employment, to live in homes rented from the employer.

(b) No employee shall be required, as a condition of employment, to trade at the store of the employer.

Article VI—Administration

Sec. 1. *Regions.*—For the purpose of administration of this code the United States shall be divided into 16 regions as indicated in the following tabulation, which is hereby constituted and made a part of this code. The Code Authority as hereinafter provided may from time to time revise such region or regions affected, subject to the approval of the Administrator.

Region No. 1.—Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island.

Region No. 2.—New York.

Region No. 3.—Pennsylvania, New Jersey, and Delaware.

Region No. 4.—West Virginia, Virginia, Maryland, and District of Columbia.

Region No. 5.—South Carolina, Georgia, Alabama, Florida, and Mississippi.

Region No. 6.—North Carolina, Kentucky, and Tennessee.
Region No. 7.—Arkansas, Louisiana, and Texas.
Region No. 8.—Ohio.
Region No. 9.—Illinois and Indiana.
Region No. 10.—Michigan and Wisconsin.
Region No. 11.—North Dakota, South Dakota, and Minnesota.
Region No. 12.—Nebraska and Iowa.
Region No. 13.—Kansas, Missouri, and Oklahoma.
Region No. 14.—Wyoming, Colorado, New Mexico, Utah, and Arizona.
Region No. 15.—California and Nevada.
Region No. 16.—Montana, Washington, Oregon, and Idaho.

SEC. 2. *Districts.*—Each region may be divided into subdivisions which shall be known as districts, to facilitate local organization, to administer this code and to provide self-determination of local issues within the provisions of this code and subject to the rulings of the regional committee and/or the Code Authority. Such districts may be established by the marketers in any marketing area subject to the approval of the regional committee. When a marketing area is situated in more than one region, a district may be established subject to approval of the regional committees affected.

SEC. 3. *Divisions.*—Any group of members of the industries, after submitting to the Administrator proof that they represent two-thirds of the production, or two-thirds of the producers, of any one type or class of industry products, so specialized in nature as to warrant the establishment of a division, and that they are primarily engaged in the production of such specialized products, may petition the Administrator to constitute such members a division of the industries or of any one industry governed by the provisions of this code. Upon such submission of proof and the receipt of such petition the Administrator, after such hearing as he may prescribe, and after securing the recommendation of the Code Authority, may designate such members and all those in their class a division of the industries. Such members shall be governed by the provisions of this code, with such exceptions as may be approved from time to time by the Code Authority and the Administrator.

SEC. 4. *Committees.*—(a) *Code Authority.*—To effectuate the policies of the Act a Code Authority is hereby constituted to cooperate with the Administrator in the administration of this code. The Code Authority shall consist of:

(1) One member representing the crushed-stone industry and one member representing the sand-and-gravel industry from each region, and also one member representing the slag industry from each region in which slag is produced.

(2) Twelve members at large, of whom at least one shall be chosen from Regions 1, 2 and 3 as hereinbefore specified; at least one from Regions 4, 5, 6, and 7; at least one from Regions 8, 9, and 10; and at least one from Regions 11, 12, 13, 14, 15, and 16.

(3) The president and one association staff representative, to serve as ex officio members, of each trade association truly representative of any industry that with the approval of the President may from time to time be governed by the provisions of this code. Such associations are hereby initially designated as the National Crushed Stone Assn., Inc., the National Sand and Gravel Assn., Inc., and the National Slag Assn., or such successor associations as may be constituted by action of the members thereof.

(4) Representatives, selected by an equitable method to be approved by the Administrator, of such industries as with the approval of the President may from time to time be governed by the provisions of this code.

(5) The President may appoint (from one to three) nonvoting members to the Code Authority as representatives of the Government. They are to be appointed for terms of from 6 mo. to 1 yr., and if more than one is appointed, their terms are to be arranged so that they do not expire at the same time.

(b) In order that the Code Authority and/or the committees established herein shall at all times be truly representative of the industries as defined in Article II hereof and of such other industries as with the approval of the President may from time to time be governed by the provisions of this code, and in other respects comply with the provisions of the Act, the Administrator may provide such hearings as he may deem proper; and thereafter if he shall find that the Code Authority and/or the committees established herein are not truly representative or do not in other respects comply with the provisions of the Act, may require an appropriate modification in the method of selection of the Code Authority and/or such committees.

Members of the Code Authority representing each region shall be elected by the regional committees of their respective regions. The elected members and the *ex officio* members shall elect the 12 representatives at large. The chairman of the Code Authority shall be selected by the full Code Authority from its membership.

Members of the Code Authority shall serve for 1 yr. from the effective date, or until their successors are elected for a like term.

(c) *Registered Producers.*—Any member of the industries as defined in Article II hereof, or producers in other industries that with the approval of the President may from time to time be governed by the provisions of this code, shall be entitled to participate in and share the benefits of the activities of the Code Authority and of other committees established herein and to participate in the selection of members thereof by assenting to and complying with the requirements of this code and sustaining their reasonable share of the expenses of its establishment and administration. The reasonable share of these expenses shall be determined by the Code Authority, subject to review by the Administrator, on the basis of volume of business and/or such other factors as may be deemed equitable to be taken into consideration. Such a participant in the code activities is hereinafter referred to as a "registered producer."

(d) *Regional Committees.*—The registered crushed-stone, sand-and-gravel, and slag producers in each region in which they are producing materials shall elect in the manner prescribed in Sec. 7 (c) of this article, an even and like number from their respective industries consisting of not less than 4 nor more than 10 to the regional committee. The members so elected by each of these industries shall elect one additional member from each of these industries to the regional committee.

This committee shall be equitably representative of the small, intermediate, and large producing companies of each industry within the region, with not more than one representative from a single company, except that a producer may have more than one but not more than 3 representatives in order to give voting parity to the industry or industries represented by that producer. This committee shall also be elected with due regard to representation from each of the states composing the region.

Members of a regional committee shall serve for 1 yr. from the effective date, or until their successors are elected for a like term.

(e) *District Committees.*—The registered crushed-stone, sand-and-gravel, and slag producers in each established district in which they are marketing, shall elect, in the manner prescribed in Sec. 7 (d) of this article, an even and like number from their respective industries consisting of not less than 2 nor more than 6 to the district committee. The members so elected by each of these industries shall elect one additional member from each of these industries to the district committee.

This committee shall be equitably representative of the small, intermediate, and large producing companies marketing within the district, with not more than one representative from a single company, except that a producer may have more than 1 but not more than 3 representatives in order to give voting parity to the industry or industries represented by that producer or producers.

Members of a district committee shall serve for 1 yr. from the effective date, or until their successors are elected for a like term.

(f) *Division Committees.*—The registered producers in any division shall elect, in the manner prescribed in Sec. 7 (e) of this article, a division committee. This committee shall be equitably representative of the small, intermediate, and large producers within the division, with not more than one representative from a single producer.

Members of a division committee shall serve for 1 yr. from the effective date, or until their successors are elected for a like term.

SEC. 5. *Duties of Committees.*—(a) *Duties of Code Authority.*—The Code Authority shall be the general planning, coördinating, and administrative agency for the industries governed by this code and shall adopt such rules and regulations as, in its judgment, and subject to modification or disapproval by the Administrator, are necessary for the proper administration of the code.

Without limiting the foregoing, the Code Authority shall have the following specific powers, subject to disapproval or modification by the Administrator:

(1) To obtain from members of the industries, periodically, or as often as it may direct, reports on wages, hours of labor, conditions of employment, number of employees, production, shipments, sales, stocks, prices, and other

matters pertinent to the provisions or operation of this code, sworn or unsworn as it may specify, or as the Administrator may from time to time require.

(2) To delegate to the regional, district, or division committees the authority to collect from members of the industries, in such regions, districts, or divisions such information and data as may be necessary for such committees properly to administer this code; provided, however, that such information and data shall be held as confidential information by such committees, except that such information and data shall be available to the Code Authority and the Administrator.

(3) To delegate to the trade associations of the industries governed by this code or to such subcommittees or such other agents or agencies as it may designate such of the administrative powers as may practicably be performed by them, and properly to compensate them therefor; provided, however, that such delegation shall not relieve the Code Authority of responsibility, and provided further that in the performance of any such delegated functions, such trade associations, subcommittees, or other agents or agencies shall comply with all applicable provisions of this code.

(4) To keep accurate records and accounts of the expenses incident to the establishing and administering of this code, and of doing such other things as it may have been, or may be, authorized or instructed by the Administrator to do; and to render from time to time such reports to the various committees and members of the industries as may in the judgment of the Code Authority seem proper.

(5) To provide for the collection at intervals of funds to cover these costs and expenses and to designate through what agency and in what manner they shall be collected, subject, however, to the provisions of Sec. 4 (c) of this article.

(6) To collect and furnish to governmental agencies such statistical information as the Administrator may deem necessary for the purposes recited in Sec. 3 (a) of the Act.

(7) To establish from its own membership an Executive Committee which, in the interim between meetings of the Code Authority, shall have all the powers and authority of the Code Authority. This Executive Committee shall consist initially of not more than 15 members from the industries governed by this code, and shall be equally and equitably representative of such industries. The representatives of the Government appointed as provided in Par. 5 of Sec. 4 (a) of Article VI of this code may also serve on the Executive Committee. The Code Authority may enlarge the Executive Committee in order to provide for equitable representation of such industries as with the approval of the President may from time to time be governed by this code.

The Executive Committee shall refer for hearing and determination questions exclusively affecting any particular industry or industries to the members of the committee representing the industry or industries, respectively. Such members shall then act as a subcommittee with power to hear and determine the question under consideration for the entire Executive Committee. The members of the Executive Committee shall serve until their successors are elected.

(8) To make such inquiries and investigations and to hold such hearings as to the operation of this code upon the complaint of interested parties, or upon its own initiative, as may be necessary properly to administer the provisions of this code.

(9) To appoint regional committees in any region or regions where committees are not elected pursuant to the provisions of this code within 30 days after the effective date. Any regional committee thus appointed shall hold office only until a regional committee for that region has been elected and qualified in accordance with the provisions of this code.

(10) To establish or designate an agency on planning and fair practice which shall coöperate with the Code Authority in developing fair inter- and intra-trade practices and industrial planning, including the regularization of employment and stabilization of employees for the industry.

(b) *Duties of Regional Committees.*—The regional committees shall administer the provisions of the code in their respective regions, provided, however, that their acts be reviewed by the Code Authority and subject to its disapproval or modification, and may be reviewed and disapproved or modified by the Administrator. Each regional committee shall refer for hearing and determination questions exclusively affecting any particular industry or industries to those members of its committee elected thereon by said industry or industries, respectively. Such members shall then act as a subcommittee with power to hear and determine the question in dispute for the entire regional committee subject to the right of appeal as hereinafter set forth.

The regional committee shall maintain the authoritative list of registered producers in each region. Each registered producer shall sign a certificate of compliance with this code, and shall report such data as to production as may be required by the committee. The regional committee shall not continue the name of any producer on the list who has failed to pay his proportionate share of the expense incidental to the establishment and administration of this code as provided for in Sec. 4 (c) of this article.

(c) *Duties of District Committees.*—The district committees shall administer the provisions of this code in their districts, provided, however, that their acts be reviewed by their respective regional committees and subject to their disapproval or modification. The acts of such district committees may be reviewed and disapproved or modified by the Administrator. Each district committee shall refer for hearing and determination, questions exclusively affecting any particular industry or industries to those members elected thereon by the said particular industry or industries, respectively. Such members shall then act as a subcommittee with power to hear and determine the question in dispute for the entire district committee subject to the right of appeal as hereinafter set forth.

(d) *Duties of Division Committees.*—Each division committee shall have power of self-government in respect to all conditions and problems relating exclusively to said division. It may establish territorial and other subcommittees, and prescribe such duties, rules, and regulations as are deemed necessary to carry out the purposes of the Act and of this code. The right of appeal from the decisions of a subordinate committee to the next higher committee, to the Code Authority and to the Administrator is hereby established. Furthermore, the Administrator shall have the right directly to review and disapprove or modify any action of any committee or subcommittee. Any such division committee may present to the Code Authority and to the Administrator recommendations designed to supplement the provisions of this code, in so far as they relate to the members and operation of such division. Upon approval by the President after such notice and hearing as he may prescribe, such recommendations shall have full force and effect and shall be considered as an integral part of this code.

SEC. 6. *Interregional Regulations.*—Proposals in respect to the administration of this code affecting more than one region may be made to the Code Authority by the regional committee of any affected region, and the decision of the Code Authority shall be conclusive, subject, however, to the powers reserved herein to the Administrator.

SEC. 7. *Voting.*—(a) *Committees.*—Each member of the Code Authority, the regional committees, the district committees, the state committees, and the division committees, shall be entitled to one vote in the proceedings thereof, and a majority vote shall govern.

(b) *Producers.*—Each registered producer as defined in Sec. 4 (c) of this article shall be entitled to one vote, except as otherwise provided in this section; provided any such producer who within 1 yr. prior to the effective date has sold and shipped the products of any or all the industries governed by this code may vote individually and separately as a member of any or all of such industries.

(c) *Meeting and Voting Within a Region.*—A meeting of producers within a region may be called at the instance of producers representing 25 per cent. of the production within a region, or representing 25 per cent. of the number of producers within a region, or at the call of either the regional committee or the Code Authority. The registered producers of each industry shall vote for members to represent their industry, as follows: An agreed-upon number of representatives of each industry shall be elected by the registered producers of the respective industries, each of whom shall have one vote irrespective of production. A like number of representatives of each industry shall be elected by the registered producers of the respective industries who shall vote in accordance with their average annual production sold and shipped during the 5 preceding calendar yr. In the event a registered producer has not been producing material throughout the 5 preceding calendar yr. his basis of voting shall be determined as the average annual rate of production sold and shipped during his period of operation, provided that his period of operation has been more than 1 calendar yr. In the event that he has operated less than one calendar year then he shall be entitled to as many votes as is equal to his production sold and shipped in tons or cubic yards according to established practice divided by 25,000. Each producer shall have one vote for each 25,000 units or major fraction thereof of average annual production sold and shipped. The unit in each case shall be in accordance with established practice within the region. After the representatives of each industry have been elected in the manner above set forth they shall elect from their industry one additional member. Except for the election of the regional committee all the voting shall be on the basis that each registered producer shall have one vote.

(d) *Meeting and Voting Within a District.*—A meeting within a district may be called at the instance of marketers

representing 25 per cent. of the production sold and shipped within the district or representing 25 per cent. of the number of producers marketing within the district, or at the call of either the district committee or the regional committee. The marketers of each industry shall vote for members who shall represent their industry as follows: An agreed-upon number of representatives of each industry shall be elected by the marketers of that industry, each of whom shall have one vote irrespective of delivered sales. An equal number of the representatives of each industry on the district committee shall be elected by the marketers of that industry, who shall vote in accordance with their average annual production sold and shipped within the district for the 5 preceding calendar yr. In the event a marketer has not been selling materials within a district throughout the 5 preceding calendar yr. his basis of voting shall be determined as the average annual production sold and shipped in tons or cubic yards during the period he has been selling in the district. Each marketer shall have one vote for each 25,000 units or major fraction thereof of average annual sales. The unit in each case shall be in accordance with established practice within the district. After the representatives of each industry have been elected in the manner herein set forth they shall elect from their industry one additional member. Except for the election of the district committee, all the voting shall be on the basis that each marketer shall have one vote.

(e) *Meeting and Voting Within a Division.*—A meeting within a division may be called at the instance of producers representing 25 per cent. of the production, or representing 25 per cent. of the producers within the division, or at the call of the Code Authority. The registered producers shall vote for members of the committee to represent their division, in such number and upon such equitable basis as may be approved by the Administrator.

SEC. 8. *Right of Appeal.*—Appeal from any decision by a district committee may be taken to the regional committee or committees of the region or regions in which such district is located. Appeal from any decision by a regional or division committee may be taken to the Code Authority or its accredited representative. The decision of the Code Authority or its accredited representative shall be final except for appeal to the Administrator. Any producers may exercise the right of appeal as herein provided from any decision affecting the interests of such producer. Questions on original hearing or an appeal exclusively affecting any particular industry shall in every instance be referred for hearing and determination to those members of the committee elected thereon by said particular industry or industries, respectively.

SEC. 9. *Arbitration.*—Complaints or controversies, involving labor, the consuming interests, or groups outside the industries which can not be satisfactorily settled by the Code Authority may, with the consent of the interested parties, be referred to an arbitration board composed of equal representation from each of the groups involved in the complaint or controversy, together with a neutral arbiter selected by the appointed members of the arbitration board. The decision of the arbitration board shall be final.

SEC. 10. *Administration Expenses.*—All the costs and expenses of establishing and administering this code shall be borne by the registered producers in the industries governed by this code. It is hereby agreed by and between such producers, and each for himself and with the Code Authority, that each such producer shall pay at the time required such assessments covering the aforesaid cost as may be required by the Code Authority. The Code Authority may appoint such agents or agencies as it may designate for the collection of these assessments. These costs as herein referred to shall be equitably distributed among the registered producers in the various industries by the Code Authority, in conformity with Sec. 4 (c) of this article.

SEC. 11. *Trade Association.*—Each trade or industrial association directly or indirectly participating in the selection or activities of the Code Authority shall: (1) Impose no inequitable restrictions on membership; and (2) submit to the Administrator true copies of its articles of association, by-laws, regulations, and any amendments when made thereto, together with such other information as to membership, organization, and activities as the Administrator may deem necessary to effectuate the purposes of the Act.

ARTICLE VII—TRADE PRACTICES

SEC. 1. *Unfair Methods.*—The following practices constitute unfair methods of competition for members of the industries and are prohibited.

(a) *Secret Rebates.*—To make secret prepayment of transportation charges or permit the payment or allowance of secret rebates, refunds, credits, or unearned discounts, whether in the form of money or otherwise, or extending to certain purchasers special service or privilege not extended to all purchasers under like terms and conditions.

(b) *Contract Interference.*—To interfere wilfully with anyone by any means or device whatsoever in any existing contract or order between a seller and a purchaser in or concerning the production, manufacture, transportation, purchase, or sale of any industry product or the performance of any contractual duty or service connected therewith, with the intent and/or effect of thereby destroying or appropriating in whole or in part the property or business of another engaged in the industries governed by this code.

(c) *Defamation.*—To defame a competitor by words or acts, falsely imputing to him dishonorable conduct, inability to perform contracts or questionable credit standing, or by the false disparagement of the grade or quality of his material.

(d) *Misrepresentation.*—To sell or offer for sale any industry product in such manner as knowingly to deceive purchasers or prospective purchasers as to the quality, quantity, size, grade, or substance of such product.

(e) *Misbranding.*—To mark or brand any product of the industry for the purpose or with the effect of misleading or deceiving purchasers with respect to the quality, quantity, size, grade, or substance of such product.

(f) *Commercial Bribery.*—To offer or give commissions, prizes, gifts, excessive entertainment, or other benefits as an act of commercial bribery to anyone in connection with the sale, purchase, or use of any industry product, or as an inducement thereto.

(g) *Lump-Sum Bidding.*—To sell any industry product except on a unit-price basis.

(h) *Contingent Selling.*—To enter into any agreement for furnishing any industry product contingent upon the sale or purchase of any other product or service, or other contingency not appearing in the contract.

(i) *Jobbers and Distributors.*—Since the great volume of industry products is sold by producers direct to consumers, no producer indirectly shall violate this code by disposing of his industry products through a middleman whom he controls by stock ownership or otherwise and who does not adhere to the standards of fair competition established in this code.

SEC. 2. *Cost Determination.*—(a) Within 120 days after the effective date the Code Authority shall establish, subject to the approval of the Administrator, a standard uniform accounting and costing system for each industry governed by the provisions of this code.

(b) When approved by the Administrator full information concerning such uniform standard systems shall be distributed by the Code Authority to all members of the industries. Thereafter each member shall adhere to the standard uniform system for the industry or industries in which he is engaged to the extent of incorporating in his calculations of cost all the elements prescribed by such system.

(c) Any district committee may, if it so elects, and subject to the approval of its regional committee and the Code Authority, adopt for the producers selling within that district, the open-price policy prescribed in Par. (d) and (e) of this section.

(d) No producers selling within a district described in Par. (c) of this section shall sell any product at less than his prime plant cost thereof, plus 10 per cent. Such cost shall be computed in accordance with the standard uniform accounting and costing system for the industry in which the producer is engaged and shall include all items of cost exclusive of return on capital invested, interest on borrowed capital, depreciation, depletion, administration, selling costs, and reserves.

(e) In any district where the open-price policy is adopted each producer selling within the district shall file with the district committee not less than 5 days in advance of the effective date thereof, all prices, terms, and conditions of sale, which shall be f.o.b. plant, or delivered, or both, as may be directed by the district committee. Such prices, terms, and conditions of sale shall continue in effect until other prices, terms, and conditions of sale have been duly filed as herein provided. The district committee shall immediately cause copies of all such prices, terms, and conditions of sale filed with it to be distributed among the producers selling within the district, and to be made available for public information.

No provision contained herein shall be construed as preventing any producer selling within a district from meeting, as of their effective date, the prices, terms, and conditions of sale, filed as herein provided by any other producer.

Except as provided in the foregoing no producer selling within a district shall deviate from the prices, terms, and conditions of sale filed by him as herein provided.

SEC. 3. *Uniform Terms of Sale.*—In each region, district, or division the regional district, or division committee, as the case may be, may establish, subject to the approval of the Administrator, terms of sale uniform within each region, district, or division. Such terms shall be binding upon all producers selling in that region, district, or division.

SEC. 4. *Uniform Credit Practices.*—In each region, district, or division the regional, district, or division committee, as the case may be, may establish, subject to the approval of the Administrator, credit practices uniform within such region, district, or division. Such practices shall be binding upon all producers selling in that region, district, or division.

SEC. 5. *Plant Capacity and New Production.*—(a) To promote the fullest possible utilization of the present productive capacity of the industries governed by this code, to curb uneconomic overproduction in the various regions herein established, and otherwise to effectuate the purposes of the Act there shall be elected in each state, as hereinafter provided, a standing committee which shall survey its state to ascertain the available sources of supply of the products of these industries within the state, the capacity of existing production facilities and the relation between existing capacity and the actual and potential demand in such state. This committee shall be known as the state committee and shall consist of 3 stationary-plant producers and 3 portable-plant producers, together with 1 additional member who shall be elected by these 6 and may be chosen from outside the industries. The 6 representative members of the committee shall be registered producers as defined in Article II of this code and shall be elected at the time of the election of the regional committee of the region in which the state is located. Members of a state committee shall serve for 1 yr. from the effective date or until their successors are elected for a like term. The representatives of the stationary-plant producers shall be elected by a majority of the registered stationary-plant producers voting and the representatives of the portable-plant producers shall be elected by a majority of the registered portable-plant producers voting. The survey and findings reported by each of these committees shall be filed with the appropriate regional committee, which shall transmit a copy thereof to the Code Authority and to the Administrator.

(b) If in the judgment of such a state committee, its survey and findings warrant such action, it may after due notice and hearing determine and define the areas, if any, within its state in which an ample supply of the products of the industries governed by this code is economically available from existing production facilities. The minutes of such hearing, together with the findings of the state committee and a map showing accurately the boundaries of such areas, shall be filed by each state committee with the appropriate regional committee, which shall transmit a copy thereof to the Code Authority and the Administrator and, moreover, a copy of the map, together with a summary of the committee's findings, shall be mailed to each registered producer within the region and to all governmental authorities who may properly be interested therein. The Administrator shall review said data and examine said map, and if he shall find that in the area or areas shown on such map an ample supply of the products of the industries governed by this code is in fact economically available from existing production facilities, such area or areas shall be established as "permissive areas" and subject to the provisions contained in the remaining paragraphs of this section.

(c) If any state committee so recommend, the regional committee shall require, subject to review and disapproval by the Administrator, that before a new plant is installed or the producing capacity of an existing plant increased within any permissive area, notice of such intent shall be filed with the regional committee of the region in which such action is contemplated. Upon receipt of such notice the regional committee shall refer it to the state committee or committees in which such permissive area may be located, who shall collect promptly and with diligence full information concerning existing production capacity in that area. If, in the judgment of the state committee, these data disclose that such new capacity will not tend to defeat the purposes of the Act as herein set forth, the regional committee within 15 days after the receipt of such notice shall grant permission for the proposed increase in capacity. If, however, in the judgment of the state committee these data disclose that within the said area an ample supply of the products of the industries governed by this code is economically available and that such proposed increase in capacity does tend to defeat the purposes of the Act by further increasing overproduction or otherwise, it shall be the duty of the regional committee within 15 days after the receipt of such notice to recommend to the Code Authority that permission to increase the production capacity in that area be denied. The decision of the Code Authority shall be final except as it may be modified or revised by the Administrator.

(d) The Administrator upon notice to the Code Authority or the regional committee directly involved may at any time suspend the provisions of Par. (c) of this section.

(e) Neither the provisions of this section nor any recommendation adopted by the Administrator pursuant thereto shall be construed as preventing any producer from improving the efficiency of his plant through the installation of new equipment or adopting any methods designed to lower production costs.

(f) The provisions of this section shall remain in effect for a period of 1 yr. after the effective date and thereafter until production in the industries governed by this code shall reach 70 per cent. of the available production capacity.

ARTICLE VIII—MODIFICATION

SEC. 1. *Statutory Provisions.*—This code and all the provisions thereof are expressly made subject to the right of the President, in accordance with the provisions of subsection (b) of Sec. 10 of the Act, from time to time to cancel or modify any order, approval, license, rule, or regulation issued under Title I of the Act and specifically, but without limitations, to the right of the President to cancel or modify his approval of this code or any conditions imposed by him upon his approval thereof.

SEC. 2. *Amendments.*—This code, except as to provisions required by the Act, may be modified on the basis of experience or changes in circumstances, such modification to be based upon application to the Administrator and such notice and hearing as he shall specify, and to become effective on approval of the President.

ARTICLE IX—MONOPOLIES

No provision of this code shall be so applied as to permit monopolies or monopolistic practices, or to eliminate, oppress, or discriminate against small enterprises.

ARTICLE X—PRICE INCREASES

Whereas the policy of the Act to increase real purchasing power will be made impossible of consummation if prices of goods and services increase as rapidly as wages, it is recognized that price increases should be delayed and that, when made, the same should, so far as reasonably possible, be limited to actual increases in the seller's costs.

ARTICLE XI—EFFECTIVE DATE

This code shall become effective on the beginning of the tenth day after its approval by the President.

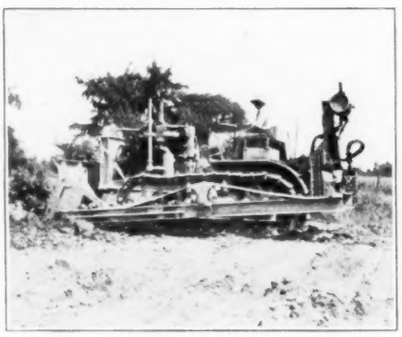
The plant of the Michigan Silica Co. viewed from the working quarry face. Primary crusher building in foreground.

Michigan Silica Co. Adds New Equipment to Insure Purest Possible Product

Conical Scrubber Used Together with Screw Washers and Magnetic Separator

By W. E. TRAUFFER

THE Michigan Silica Co., Rockwood, Wayne County, Mich., has the distinction of being the only producer of high-grade silica sand suitable for optical- and plate-glass manufacture in the state of Michigan. The plant is located 1 mi. east of Rockwood and is on the Detroit & Toledo Shore Line Ry. Its location only 28 mi. by railway from Detroit and 50 mi. from Toledo gives the company a marked shipping advantage over more distant producers in serving these large markets.



The crawler tractor and bulldozer attachment used for leveling off the overburden waste fill being built up near the quarry.

The history of this deposit is interesting. The presence of a commercial silica deposit was unsuspected until 30 yr. ago, when drilling for oil revealed its existence. After an investigation the deposit was opened and operations begun in a small way. Several years later the property was taken over by the American Silica Co., which operated it for a few years. The Rockwood Silica Co. was then formed and continued until 1922, when it

Gasoline shovel loading silica rock at the quarry face.

Another gasoline shovel loading overburden into trucks.

was reorganized as the Michigan Silica Co. and as such has operated the plant ever since.

Edward J. Beyer, general manager and general superintendent, has been in charge of the operations since 1922, at which time the plant had a capacity of about 20 tons per hr. In 1927 new buildings and equipment, which raised the capacity to 50 tons per hr., were added. In the winter of 1932-33 a second rotary drier, a new Hardinge scrubber and other equipment were installed. During the summer a set of Link-Belt dewatering screws was put in and the scrubber was moved to a new location. The mill building was enlarged to make room for these changes. All this work was done under the personal supervision of Mr. Beyer. Thirty-five men are employed in the plant operations.

The plant buildings, as a whole, are modern and of fireproof construction. Concrete is used wherever possible, for silos, plant and machinery foundations, and footings. All the buildings have structural-steel frames and corrugated-metal siding. The newest structure, the mill building, is of the latest factory type with brick walls and large steel-sash windows which constitute about 90 per cent. of the wall area. All the other buildings are also

TABULAR ANALYSIS OF THE OPERATIONS AND EQUIPMENT OF THE MICHIGAN SILICA CO. PLANT AT ROCKWOOD, MICH.

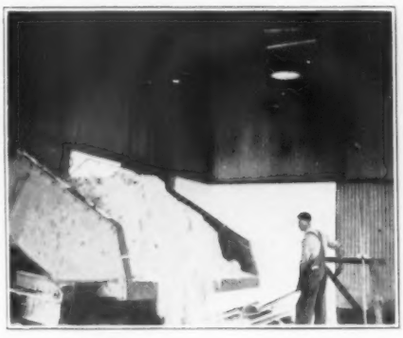
Operation	Key	Equipment	Make	Model No., Size, Capacity or Type	Power Source	Power Transmission
Stripping		Shovel Trucks (4)	Thew-Lorain Mack	No. 75 B, gasoline 5-cu. yd., dump		
Overburden Disposal		Tractor Bulldozer	Caterpillar La Plante Choate	No. 60		
Drilling		Well-drill	Loomis Clipper			
Loading and Handling	1 2	Shovel Locomotives (2) Cars (6) Car-haul chain Air-hoist	Thew-Lorain Plymouth Easton Link-Belt Curtis	No. 75, gasoline 4-ton gasoline 4-ton Phoenix No. 906 9-in. by 6-ft.	10-hp. G. E. motor	Jones speed-reducer
Primary Crushing	3	Jaw crusher	Buchanan	36-in. by 42-in. all-steel	100-hp. G. E. motor	Flat belt
	4 5	Feeder belt-conveyor Belt-conveyor	Robins Robins	30-in., 12-ft. centers 24-in., 425-ft. centers	10-hp. G. E. motor 25-hp. G. E. motor	Jones right-angle reducer and chain Falk reducer
Storage	6 7	Storage-tank Belt-conveyor	Robins	1,000-ton, steel 30-in., 35-ft. centers		Chain, speed-reducer and Reeves variable-drive
First Scalping	8	Vibrating screen (Oversize to $8a_1$; throughs to 9)	Tyler Hum-mer	No. 39		
Reduction of Oversize	$8a_1$ $8a_2$	Chilian mill Bucket-elevator (Back to 8)	Lewiston	8-ft.		
Second Scalping	9	Vibrating screen (Oversize to $8a_1$; throughs to 10)	Tyler Hum-mer	No. 37		
Classification	10	Bowl classifier (Overflow to 10a; material to 11)	Dorr	22-ft. diameter	20-hp. G. E. motor	
	11	Rake classifier (Overflow to 10a; material to 12)	Dorr	25-ft. long		
Waste Disposal	10a	(From 10 and 11) Pump, centrifugal (To waste)	Buffalo			
Final Washing and Handling	12 13 14	Conical scrubber Screw-washer Pump	Hardinge Link-Belt Nye Machine Co.	8-ft. 4-in., steam	40-hp. G. E. motor Scrubber motor	Allis-Chalmers Texrope Roller-chain and sprockets
Drainage and Rehandling	15 16 17	Drain tanks (3) Crane Hopper	Orton & Steinbrenner	Concrete, 1,000-ton each 1-cu. yd., steam 60-ton		
Drying	18	Feeder belt-conveyors (2)	Link-Belt	16-in., 12-ft. and 25 ft. centers	5-hp. G. E. motor	Chain from lineshaft
	19	Rotary driers (2)	Ruggles-Coles	Direct-indirect, 70-in. by 35-ft., oil-fired	50-hp. G. E. motor	Flat belt from lineshaft
		Blowers (2)	Clarage	Centrifugal	From drier lineshaft	Belt
Rehandling	20 21 22	Belt-conveyor Bucket-elevator Belt-conveyor	U. S. Rubber Co. Link-Belt U. S. Rubber Co.	20-in., 35-ft. centers 60-ft. centers 20-in., 35-ft. centers		
Storage	23 24	Storage-tank Bucket-elevator		3,500-ton, concrete 60-ft. centers		
Final Screening and Magnetic Separation	25 26 27 28	Vibrating screens Hopper Reciprocating feeder Magnetic separator	Tyler Hum-mer Dings	4-ft. by 5-ft., No. 37 Type X, 20-in. dia. by 72-in.		
	29	Bucket-elevator		50-ft. centers		
Loading	30 31	Loading tank Car-loader (To railroad cars)		120-ton		
Quarry Drainage and Water-Supply		Pumps (2)	Fairbanks-Morse	Centrifugal, 1,000 gal. per min.	50-hp. Fairbanks-Morse motor	Direct
			Union Steam Pump Co.	Centrifugal, 1,000 gal. per min.	50-hp. Westinghouse motor	Direct
Air-supply		Air-compressor	Pennsylvania	9-in. by 10-in.	40-hp. G. E. motor	Flat belt

The screening building with loading tank at left, storage silos in center and drain bins at right.

The primary crusher building with full car entering at right and empty leaving at left.

Clamshell crane rehandling sand from drainage bins to storage bin over the drier building.

The washer building with surge bin at left. Note ample window area.



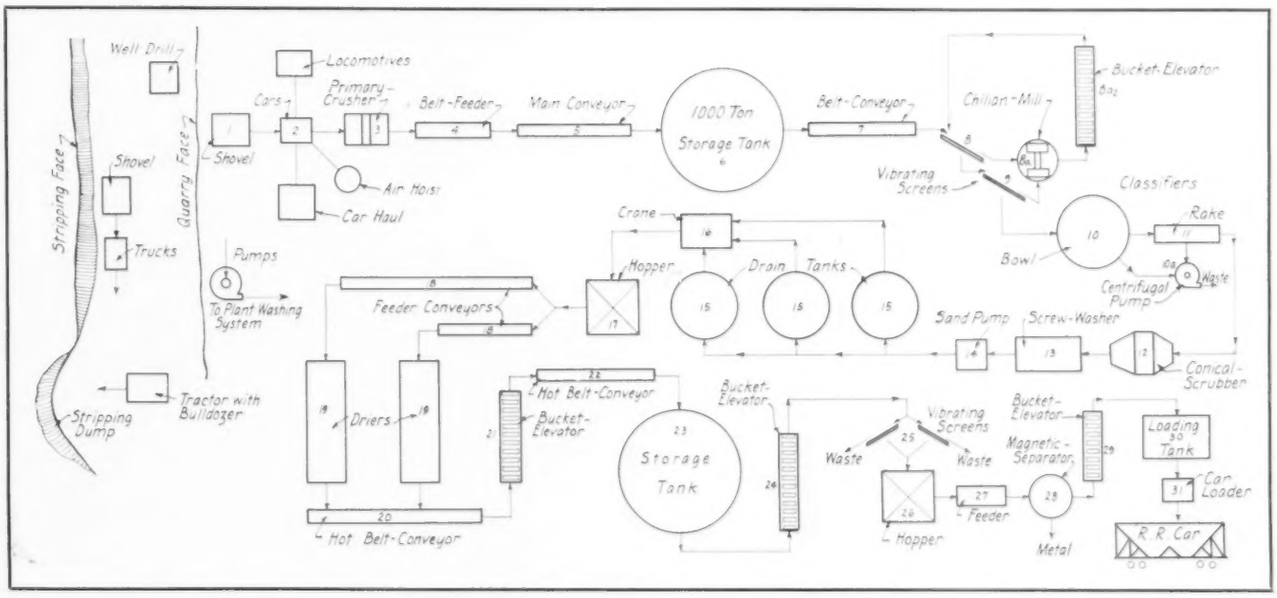
Air hoist dumping quarry car into primary jaw crusher.

well lighted. A few of the older buildings used for miscellaneous purposes are less modern.

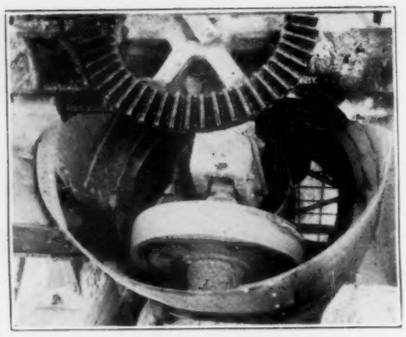
The overburden is a hard glacial till about 18 ft. in depth. This is removed by a Thew Lorain No. 75B gasoline shovel and is hauled to a near dump by four Mack 5-cu.yd. dump trucks owned by the company. The overburden fill is leveled off by a Caterpillar 60 tractor fitted with a LaPlante Choate bulldozer. A second Caterpillar 60 tractor is used for general utility about the plant and quarry. Stripping operations are carried on about 4 months out of the year and 7 men are employed for this period.

The deposit is in the Sylvania sand-rock formation, probably of Æolian origin and has all the qualities needed for high-grade glass manufacture. It is fine and uniformly grained and, because it has little cementing material, disintegrates readily when shattered. Because of this characteristic one crushing operation and a thorough washing suffice almost completely to separate the sand particles from each other. Deposit averages 110 ft. in depth, but the present quarry face is only 45 ft. in height.

Blast-hole drilling is done with a Loomis Clipper electric-powered well-drill. A single row of 10 to 15 holes is blasted at one time; although sometimes the holes are staggered. Du Pont 40-per cent. quarry gelatin is used with countered Cordeau-Bickford safety fuse and 4-ft. electric blasting caps. The few large rocks resulting are drilled with Chicago Pneumatic jackhammers. The same



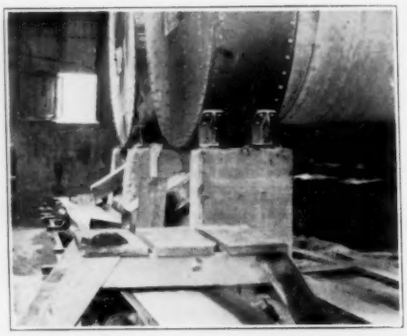
Flow-sheet of operations of the Michigan Silica Co., Rockwood, Mich.



Looking down into the Chilean mill used for reduction of oversize.

explosive is used as in the primary blasts.

The broken material is loaded by a Thew Lorain 75 gasoline shovel having an Amsco manganese-steel dipper into Easton Phoenix - type 4-ton side-dump cars of which there are 6. These are hauled to the foot of the incline leading to the primary crusher building in trains of two cars each by a Plymouth 4-ton 4-speed, gear-drive gasoline locomotive and a 4-ton friction-drive locomotive of the same make. The latter locomotive has been in constant use for 15 yr. and was one of the first Plymouth gasoline locomotives made. The method described keeps both the shovel and primary crusher in constant operation.

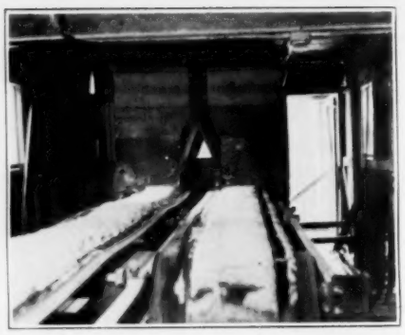


The two rotary driers discharging to a special belt-conveyor.

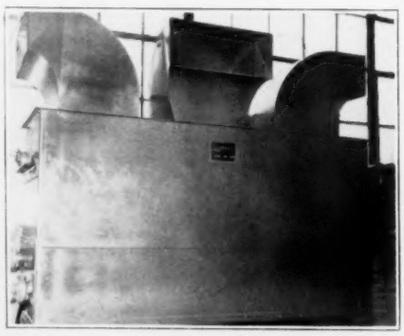
The cars are hauled one at a time up a short incline into the primary crusher building in the quarry by a Link - Belt No. 906 car - haul chain which also "spots" them. A Curtis 9-in. by 6-ft. air - hoist dumps the contents of the cars into the primary crusher. The empty cars are let down a similar incline on the opposite side of the building by the same continuous chain and are then picked up and taken back to the face by the locomotives. A Pennsylvania 9-in. by 10-in. compressor in the crusher building furnishes air for the jackhammers, the air-hoist and for the plant machine and repair shop.

Tail-end drive of the conveyor from primary crusher to plant.

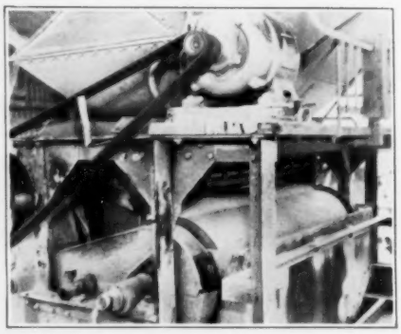
The bowl classifier with vibrating screens and rake in foreground.



The split chute which feeds from bin to the two rotary driers.



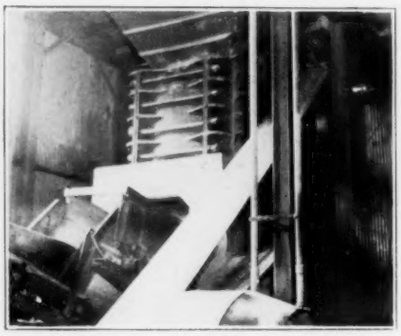
The heater which keeps the washer building at a workable temperature.



The revolving magnetic separator which insures clean product.

The Buchanan 36-in. by 42-in. primary jaw crusher is of all-steel construction and reduces the material to 5-in. size and under. The crushed silica rock is taken by a 30-in. feeder belt-conveyor, which operates on 12-ft. centers and discharges its load on the main belt-conveyor leading to the top of the quarry. This conveyor is 24 in. wide, operates on 425-ft. centers, and is driven near its tail end through a double-pulley snub drive. A 25-hp. General Electric motor drives the conveyor through a Falk reducer and is equipped with a General Electric solenoid brake to prevent reversing of the belt under load in case of power failure. The conveyor is supported for its entire length on a structural-steel framework and is inclosed.

There is considerable seepage water in



The 36-in. by 42-in. jaw primary crusher and feeder belt.

the quarry and this is allowed to collect in a worked-out section. A small building houses two centrifugal pumps, one made by the Fairbanks-Morse Co. and one by the Union Steam Pump Co. Each pump has a capacity of 1,000 gal. per min. The pumps are used intermittently as required. This water is used in the plant for washing the raw material. A Buffalo centrifugal pump in the mill building gives additional water pressure for washing.

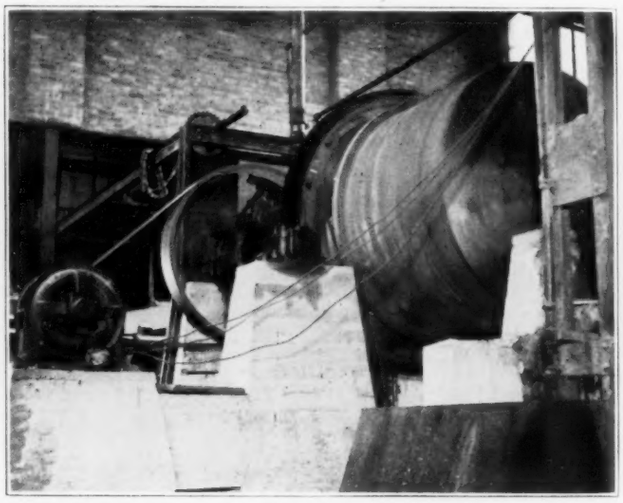
The main conveyor from the quarry discharges into a 1,000-ton steel storage-tank. A 30-in. Robins belt-conveyor set on 35-ft. centers conveys the material from the tank to a No. 39 Tyler Hum-mer vibrating screen in the mill building. This screen has ½-in. wire cloth. The oversize goes by gravity to an 8-ft. Lewiston Foundry & Machine Co. Chilean mill. The sand passing through the screen goes to a No. 37 Hum-mer screen having 14-mesh Tyler Ton-Cap screen cloth. The rejects from this screen are also chuted to the Chilean mill, which discharges its product on a belt-bucket-elevator which returns it to the No. 37 screen, forming a closed circuit. Both screens have sprays for washing the sand.

The material passing through the No. 37 screen is fed to a Dorr 22-ft. bowl classifier equipped with a 25-ft. rake. A Buffalo centrifugal pump handles the slime from the classifiers to waste. The bowl classifier discharges into a Hardinge 8-ft. conical scrubber which empties into six Link-Belt screw-washers. A Nye Machine Co. 4-in. steam sand pump sends the washed material a distance of 250 ft. to 3 concrete tanks having a capacity of 1,000 tons each. Here the sand is allowed to drain at least 24 hr. It is then rehandled from the tanks by an Orton & Steinbrenner steam crane which has a 1-cu.yd. Mead-Morrison clam-shell bucket and is mounted on a steel framework. The drained sand is deposited in a 60-ton hopper over the drier building. A specially-designed split chute divides the flow of material from the hopper to two 16-in. horizontal Link-Belt belt-conveyors, each feeding one of the two driers. One of the belts operates on 12-ft. and the other on 25-ft. centers.

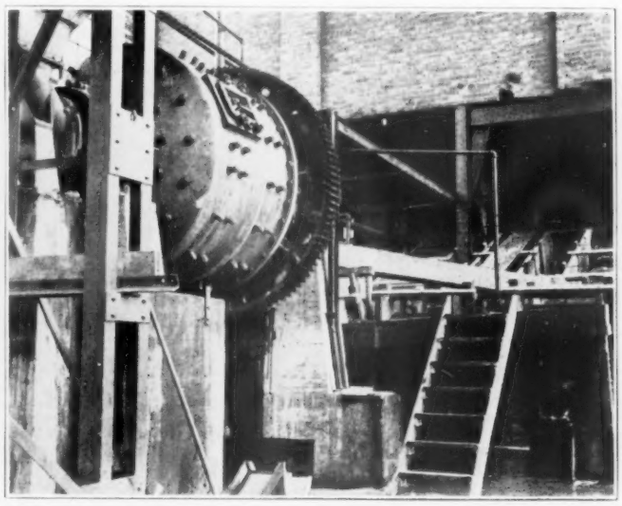
The driers are Ruggles-Coles 70-in. by 35-ft. direct-indirect units which are oil-fired with burners made at the plant. Both discharge the dried sand to a 20-in. U. S. Rubber Co. "Hotfines" belt-conveyor, operating on 35-ft. centers, which is used here because of its resistance to heat. The conveyor discharges to a Link-Belt bucket-elevator which is set on 60-ft. centers and feeds another 20-in. "Hotfines" conveyor operating on 35-ft. centers. This discharges to a 3,500-ton concrete dry-storage tank.

The dry sand is fed from storage to the boot of a bucket-elevator working on 60-ft. centers. A double-split chute feeds four 4-ft. by 5-ft. Tyler Hum-mer screens which are arranged in pairs back to back. All these screens have 24-mesh cloth, the oversize being wasted and the throughs going to a hopper. A reciprocating feeder under this hopper distributes the sand evenly over a revolving Dings Type X magnetic separator, which is 6 ft. long and 20 in. in diameter. The sand drops from the surface of the separator by gravity and the metal separated from the sand adheres to it. As the metal reaches the lowest point in the circumference of the separator it passes out of the magnetic field and is discharged on a chute. Most of this metallic iron is in the form of dust and is accumulated as the sand passes over steel chutes, bins, etc. The pure sand then goes to a bucket-elevator which operates on 50-ft. centers and discharges into a 120-ton steel loading tank. Gates and spouts from the tank discharge to a car loader which loads paper-lined box-cars for shipment. Truck shipments of bulk sand are made to brass and grey-iron foundries and some sand is sacked by hand for sale to department stores as play sand. Most of the product is used for tableware, bottles, glass, containers, etc.

Unlike most silica-sand plants, the dust problem here is negligible due to a number of reasons. The sand is fine and well-graded and disintegrates readily and what little grinding is necessary is done wet. As a result there is very little of the extremely fine dust which causes silicosis. All screening, handling and processing of the sand, from the time it enters the main plant up to the drying process, is also done wet. The only locations in the entire plant where dust is present in sufficient quantities to be harmful are in the screening and loading



The conical scrubber with six screw-washers which clean the sand.



Another view of the scrubber showing v-belt and gear drive.

building, where the sand passes over vibrating screens and a magnetic separator, and in the cars themselves. All the men employed in these operations are furnished with Pulmosan nose-type respirators which they are required to wear. The screens and magnetic separator are also connected to a cyclone dust-collector.

The electric current used in operating the plant is purhased from the Detroit Edison Co. It is received at 3,400 v. and is stepped down to 440 v. and 110 v. for plant use. A small motor-generator set is used to supply direct-curent for the vibrating screens and the magnetic separator. A Niagara Blower Co. fan heater in the washer building makes winter operation of the entire plant possible.

The company maintains a completely-equipped machine and repair shop where most of the plant repair work is done. The equipment includes two lathes, a milling machine, a drill press, a bolt cutter, an emery wheel, etc. There is also an Ingersoll-Rand drill-sharpener and oxy-acetylene welding and cutting equipment.

Judge Upholds Quarry Blasting

Judge Geo. C. Corson on Nov. 17 handed down a decree in Montgomery County Court refusing to stop the blasting operations of the Valley Forge Cement Co., West Conshohocken, Pa. Several residents in the vicinity of the cement plant operations had brought suit for damage due to blasting operations. Seismometers placed in the homes showed greater vibration due to a person walking in the building than was caused by an actual blast. No damage of any kind to the homes was found.

STATE HIGHWAY MILEAGE BUILT, 1932

State Rural Road Mileage on State Highway Systems Improved and Surfaced During 12-Month Period Shown

(Compiled from Reports of State Authorities)

State (Year Ends December 31, 1932 Except as Noted)[1]	Total Mileage Improved and Surfaced	Earth[2] Roads Improved (Graded and Drained)	New Surfacing Place[3]						Sand-Clay and Topsoil On			Gravel, Chert, etc. (Treated and Untreated) On			Waterbound Macadam (Treated and Untreated) On			Bituminous Macadam By Penetration On			Bituminous Concrete Including Sheet Asphalt) On			Portland Cement Concrete On			Block Pavement Vitrified Brick On[4]		
			Total	Sub-Total		On Earth Roads	On Old Surface																					
				Low Type	High Type		Of Other Types	Of Same Type (Reconstruction)	Non-Surfaced	Other Types	Same Type	Non-Surfaced	Other Types	Same Type	Non-Surfaced	Other Types	Same Type	Non-Surfaced	Other Types	Same Type	Non-Surfaced	Other Types	Same Type	Non-Surfaced	Other Types	Same Type	Non-Surfaced	Other Types	Same Type
Alabama[1]	256	107	149	139	10	113	–	36	61	–	35	42	–	1	–	–	–	–	–	–	–	–	–	10	–	–	–	–	–
Arizona	120	4	116	109	7	110	3	3	–	–	–	109	–	–	–	–	–	–	–	–	1	3	3	–	–	–	–	–	–
Arkansas	14	9	5	–	5	–	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–
California	493	81	412	184	228	131	161	117	–	–	–	89	68	27	–	–	–	–	–	–	2	59	–	40	37	90	–	–	–
Colorado	446	6	440	429	20	51	18	371	–	–	–	51	–	369	–	–	–	–	–	–	–	1	–	–	17	2	–	–	–
Connecticut	65	–	65	41	24	48	13	4	–	–	–	2	–	–	35	2	2	8	–	1	–	–	1	3	11	–	–	–	–
Delaware	54	4	50	27	23	50	–	–	–	–	–	27	–	–	–	–	–	–	–	–	–	–	–	23	–	–	–	–	–
Florida	330	81	249	175	74	239	3	7	7	–	7	–	–	–	161	–	–	–	–	–	64	3	–	7	–	–	–	–	–
Georgia[5]	1,109	248	861	478	383	526	273	62	84	–	41	74	33	11	173	60	2	25	14	4	9	46	2	158	120	2	3	–	–
Idaho	279	8	271	263	8	125	10	136	–	–	–	125	2	136	–	–	–	–	4	–	–	4	–	–	–	–	–	–	–
Illinois	867	183	684	4	680	612	41	1	–	–	–	4	–	–	–	–	–	–	–	–	–	–	–	638	9	[6]1	–	32	–
Indiana	629	66	563	75	488	182	359	22	–	–	–	41	2	14	15	–	–	23	41	–	3	–	–	97	313	8	–	3	–
Iowa	725	30	695	375	320	439	255	1	–	–	–	375	–	–	–	–	–	–	–	–	–	–	–	64	255	1	–	–	–
Kansas	1,158	186	972	867	105	506	464	2	257	–	–	172	438	–	–	–	–	–	–	–	–	–	–	77	26	2	–	–	–
Kentucky	799	251	548	332	216	366	168	14	–	–	–	82	–	5	245	–	–	–	45	–	4	22	8	35	101	1	–	–	–
Louisiana	1,784	358	1,426	671	755	571	675	180	–	–	–	491	–	180	–	–	–	–	–	–	–	49	–	80	626	–	–	–	–
Maine	140	–	140	72	68	40	56	44	–	–	–	26	2	44	–	–	–	9	24	–	–	–	–	5	30	–	–	–	–
Maryland[1]	236	–	236	75	161	232	4	–	–	–	–	75	–	–	–	–	–	55	–	–	–	3	–	102	1	–	–	–	–
Mass.	127	–	127	–	127	42	53	32	–	–	–	–	–	–	–	–	–	14	20	28	–	16	3	28	17	1	–	–	–
Michigan	926	109	817	405	412	246	219	352	12	11	–	63	28	271	–	13	7	–	–	1	1	24	–	170	143	73	–	–	–
Minnesota	2,171	937	1,234	697	537	970	10	254	–	–	–	443	–	254	–	–	–	–	–	–	–	–	–	527	10	–	–	–	–
Mississippi	87	44	43	39	4	–	4	39	–	–	–	–	–	39	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–
Missouri	2,210	281	1,929	1,575	354	1,580	163	186	–	–	–	1,390	–	185	–	–	–	–	25	1	2	18	–	188	120	–	–	–	–
Montana	963	152	811	811	–	312	–	499	35	–	–	277	–	499	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nebraska	1,452	[7]183	1,269	1,211	58	830	170	269	–	–	–	830	112	269	–	–	–	–	–	–	–	58	–	–	–	–	–	–	–
Nevada	553	9	544	530	14	117	14	413	–	–	–	117	–	413	–	–	–	–	–	–	–	14	–	–	–	–	–	–	–
New Hamp.	238	–	238	212	26	179	23	36	–	–	–	179	–	30	–	–	3	–	6	3	–	–	–	–	17	–	–	–	–
New Jersey	41	–	41	–	41	30	7	4	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	28	7	4	[4]1	–	–
New Mexico	665	450	215	197	18	16	104	95	–	–	–	8	94	95	–	–	–	–	–	–	4	9	–	4	1	–	–	–	–
New York	1,204	41	1,163	10	1,153	336	780	47	–	–	–	9	1	–	–	–	–	38	9	10	63	565	18	226	205	19	–	–	–
N. Carolina	462	20	442	429	13	125	129	188	105	–	126	–	110	30	9	17	32	10	–	–	–	–	–	1	2	–	–	–	–
N. Dakota	1,439	372	1,067	1,067	–	815	69	183	–	–	–	815	69	183	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ohio	977	–	977	412	565	18	401	558	–	–	–	5	17	353	–	9	28	–	73	69	–	42	23	8	200	41	5	60	44
Oklahoma	518	206	312	264	48	284	28	–	–	–	–	264	–	–	–	–	–	–	–	–	–	–	–	20	28	–	–	–	–
Oregon	331	44	287	148	1 9	84	110	93	–	–	–	82	1	65	–	–	–	–	105	–	–	–	28	2	4	–	–	–	–
Pa.[1]	3,458	–	3,458	3,308	150	3,333	45	80	–	–	–	2,912	–	42	325	8	21	–	1	1	1	5	2	95	31	12	–	–	2
Rhode Is.	26	6	20	3	17	17	3	–	–	–	–	3	–	–	–	–	–	6	–	–	2	–	–	6	3	–	–	–	–
S. Carolina	868	151	717	473	244	316	136	265	208	–	265	–	–	–	–	–	–	–	–	–	–	–	–	108	136	–	–	–	–
S. Dakota	507	41	466	434	32	257	7	202	–	–	–	232	–	202	–	–	–	–	–	–	–	–	–	25	7	–	–	–	–
Tennessee[5]	556	233	323	120	203	286	37	–	–	–	–	120	–	–	–	–	–	29	–	–	21	13	–	113	24	–	3	–	–
Texas	3,150	1,156	1,994	506	1,488	1,382	409	203	–	–	–	348	23	115	20	–	–	363	223	50	72	43	35	570	120	3	–	–	–
Utah	462	12	450	431	19	123	254	73	–	–	–	123	241	67	–	–	–	–	–	–	–	4	2	–	9	4	–	–	–
Vermont	94	–	94	5	89	–	94	–	–	–	–	–	–	–	–	5	–	–	62	–	–	–	–	–	27	–	–	–	–
Virginia	267	28	239	225	14	165	27	47	98	–	1	47	15	5	17	1	41	–	–	–	–	8	–	3	3	–	–	–	–
Washington	765	117	648	553	95	122	58	468	–	–	–	108	–	445	–	–	–	–	–	–	–	–	–	14	58	23	–	–	–
W. Virginia	432	85	347	187	160	188	120	39	–	–	–	53	72	14	48	–	–	–	–	24	58	25	–	29	23	1	–	–	–
Wisconsin	1,179	74	1,105	691	414	799	225	81	–	–	9	567	–	72	43	–	–	–	42	–	–	9	–	189	174	–	–	–	–
Wyoming	339	21	318	318	–	318	–	–	–	–	–	318	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sub-Totals	35,971	6,394	29,577	19,586	10,009	17,661	6,210	5,706	867	11	484	11,101	1,328	4,435	1,091	115	136	580	694	192	308	1,043	125	3,702	2,924	288	[4]12	95	46
Totals	35,971	6,394	29,577	29,577		29,577			1,362			16,864			1,342			1,466			1,476			6,914			[4]153		

Notes: [1] In states not using calendar year the years end as follows: Alabama and Maryland, September 30; Pennsylvania, May 15; and Mississippi, January 31, 1933. Two states, Georgia and Tennessee, report for period ending December 31, instead of June 30 as in previous years.

[2] Column shows previously unimproved earth roads, improved to an established grade and drained.

[3] Subdivision according to low and high types, and also according to type of road on which placed; low types include Sand-Clay, Gravel and Waterbound Macadam, high types include Bituminous Macadam and better types.

[4] All brick pavement except one mile of stone block pavement in New Jersey.

[5] Report covers a year and a half; from June 30, 1931 to December 31, 1932.

[6] Excludes 34 miles of road widening.

[7] Includes 38 miles of reconstruction.

N. R. A. Listens to Pleas for Feldspar Industry's Competition Code

Sets 48-Hr. Week at 25 Cents in Mining and 40-Hr. Week at 30 Cents in Milling

A COMPLETE rejuvenation of the feldspar industry, from mining to grinding of the mineral, is forecast by leaders in the industry, if the code of fair competition upon which hearings were conducted in Washington on November 4 by the National Recovery Administration is adopted.

From time immemorial the importance of feldspar in the manufacture of porcelain, ceramics, all kinds of glassware, and other products has been given deep consideration, but the expansion of the manufacture of enamel and delicate pottery products has broadened its use. Feldspar is now used in the manufacture of soaps, abrasives and refractories.

The poor wage paid miners of the mineral was one of the phases of the industry that was stressed at the hearing conducted by Deputy Administrator Ralph Fogg, a civil engineer by profession. Mr. Fogg said he was amazed at the low earning level of the men who dig the product from the earth and assist in getting it to the mills to be ground into a powder for use.

Five counties of western North Carolina were represented as producing 57 per cent. of the feldspar utilized in the United States, 90 per cent. of which is quarried by independent miners. The hourly wage paid miners in the mountainous region of the state was reported as 10 c. in most cases, with skilled mechanics receiving 25 c. per hr. for 54 hr. a week.

The proposed code fixes a maximum work week of 40 hr. averaged over 6 months, and not more than 48 hr. in any one week for employees engaged in mining operations, and a maximum of 40 hr. for employees engaged in milling or grinding operations. Clerical employees may work 40 hr. a week and not to exceed 10 hr. in any 24-hr. period. For repairmen, watchmen and engineers the hours must not exceed 60 in any one week. The foregoing does not apply to executives receiving $35 a week or more.

The clause regarding wages provides that no employee engaged in common labor in mining operations shall be paid less than 25 c. an hr. in the South nor less than 30 c. in the North, and that tool dressers and drillers shall be paid not less than 30 c. an hr. in the South, nor less than 35 c. in the North. The minimum wage for employees engaged in milling or grinding operations is fixed at 30 c. an hour for the South and 35 c. in the North. The minimum wage for clerical help is fixed at $12 for a week of 40 hr.

The code as presented was the *denouement* of the submission of various codes from various sections of the country, one coming from nearly every state in which feldspar is mined, such being chiefly New York, Virginia, Maryland, North Carolina, Pennsylvania, North Dakota, Colorado and Arizona. Proponents of the various codes were informed by the N. R. A. that they would have to submit a basic code for the entire industry with the result that a meeting of the Feldspar Grinders' Assn. was held in New York City July 20, when a code was drawn. Of the 14 known companies in the feldspar-grinding business, the association as then constituted included 8, which represented 57 per cent. of the industry in the number of companies and approximately 80 per cent. of the industry in the volume of output.

As a result of various conferences it was decided to include the feldspar-mine operators, and in order to do this it was necessary to revise the constitution and by-laws of the grinders' association. This was done and the one code as presented embodied the viewpoint of 80 to 85 per cent. by volume of both the mining and grinding interests in the industry.

The code committee selected to draft the code comprised H. P. Margerum, president of the Consolidated Feldspar Corp., Trenton, N. J.; W. H. Hibbs, Asheville, N. C.; and W. N. Guthrie, of the engineering firm of Stevenson, Jordan & Harrison, New York.

The committee held several conferences with members of the industry and one important change was made, that asked by R. H. Patterson of the Virginia Feldspar Assn., which provided by amendment that, of the code committee set up to administer the code—three members from the mining industry and three from the grinding industry—none of the members representing the mining branch should be engaged in grinding, and *vice versa*. This suggestion doubtless evoked statements later made by W. H. Hibbs to the effect that some of those engaged in the grinding industry, "have depressed the market by buying at low prices and through cutthroat methods, though I must say that during this terrible depression many of the grinders have been sympathetic and fair and have stood by us in the darkest hours." Mr. Hibbs is engaged in mining.

After reading of the code had been dispensed with, Mr. Guthrie told of the meetings held in its preparation, and the fact that it was intended to carry out the purposes of the National Industry Recovery Act by improving standards of labor and employment and remedying the disorganization in the industry. He said that it would allow an increase in employment in the industry of about 26 per cent., and will increase the average hourly earnings of employees 25 per cent. It was stated that

the minimum-wage scale will result in an increase of 50 per cent. in some of the rates now paid and will show an increase in average rates of pay in excess of 1929.

He then referred to the uses of feldspar saying that it is most commonly and principally employed as a chemical agent in glass batches, that it is used by various manufacturers of all kinds of glassware and as a fusing agent for glazes in the manufacture of enamel and pottery products, and referred to the fact that some is used in soaps, abrasives and refractories.

Mr. Guthrie also stated that not more than 850 men are now engaged in mining feldspar, that these are working 55 hr. a week, and that the number would be increased immediately by from 200 to 300. Wages would be increased in many regions from 10 to 25 c. an hr.

Mr. Hibbs then described the industry in North Carolina, stating that as a rule 500 to 600 are engaged in the industry in his state but that the code would increase the number to 897, would increase wages, generally, 80 per cent. He said that the miners as a rule are small farmers who produce their own meat, fruits, vegetables and the like on their small farms, and work in the feldspar mines in the summer and autumn when the weather allows, their wages from the feldspar mines being "sure crop money to them."

The total output of feldspar in 1929 was 208,000 tons but last year this dropped to 95,000 tons, the price of $15.29 per ton in 1929 declining to $11.69 last year. The total capacity of all mines was given as 715,000 tons per annum, though in peak years the average shipment was 200,000 tons.

All features of the code were passed without comment, until Sec. C, of Article VI, was read. Then appeals were made by several members for its adoption, the statement being made by Mr. Hibbs that "it is the heart of the code." It reads:

"No member of the industry engaged in grinding operations shall purchase products of members of the industry engaged in mining operations at less than such minimum prices as the Code Authority" [composed of three members each from the two branches] "may from time to time establish. The Code Authority, prior to establishing such minimum prices, shall submit its recommendations with respect thereto to the Administrator for his approval."

No objections were raised to this provision.

The code was further amended to provide that each grinding concern should register its mill grinding capacity with the association and keep the association informed of all increases, a plea being made by Mr. Hibbs and others for "a live-and-let-live policy."

V. V. Kelsey, vice-president of the Consolidated Feldspar Corp., of Trenton, N. J., also spoke in advocacy and for the adoption of Sec. C, Article VI.

The deputy administrator then called upon Mr. Hills to tell how feldspar is mined, and he said that it is found in his state in combination with flint, mica and other ingredients. Two skilled mechanics are needed at every mine, a blacksmith and a jack-hammer operator, the remainedr of the employees being pick and shovel men, or "muckers," he said.

Mr. Hibbs then spoke for acceptance of Section D of Article VI, which reads:

"The Code Authority shall formulate and submit for the approval of the Administrator a classification of the grades of feldspar in accordance with the uses thereof. After approval thereof by the Administrator no member of the industry shall sell feldspar except in accordance with such classification."

Speaking on the foregoing, Mr. Hibbs declared that there are two grades of feldspar known to the trade, No. 1 and No. 2, that the grades were controlled by the potash, soda, silica and alkali content, and then called upon W. F. Deneen of Johnson City, Tenn., an engineer representing the North State Feldspar Co., to explain the properties of the mineral, which he did, saying that these were soda, aluminum, silica, potash, etc., and that No. 2 contained more impurities and was used in glassware manufacture whereas No. 1 was used in the making of pottery.

The deputy administrator then asked the code committee to furnish him by Tuesday a statement of the ratio between wages of 1929 and June 1, 1932.

C. H. Peddrick, Jr., vice-president of the United Feldspar Corp., New York City, took the position that feldspar should be graded according to chemical analysis, saying that each large mill had chemists and facilities to grade it, and that such a plan should be followed.

In asking that the code be amended, he said:

"Attached hereto is a copy of the Commercial Standards 23-30 accepted by a large number of associations, firms, laboratories, colleges and the U. S. Government as a commercial standard. This standard, which has since been accepted by the industry, shows the standard methods of physical and chemical tests and the established effective date as of Sept. 1, 1930. Therefore, we recommend that Commercial Standards 23-30 be the standard used as a classification for grinding feldspar in accordance with the uses thereof. This standard has been used by us with great success since its adoption and represents much work on the part of the Standards Committee, which committee was chosen from feldspar grinders, state universities, pottery, insulator, glass and porcelain manufacturers and the Bureau of Standards of the U. S. Government and which should establish the value of Commercial Standards 23-30."

The amendment was taken under advisement and will be considered at conferences to be held on the code.

The deputy administrator then adjourned the hearing with the request that all persons having statements to submit should have them in his office at the N. R. A. by Tuesday, November 7.

Coincident with the hearings on the code, it was announced by General Hugh S. Johnson, recovery administrator, that Dr. Edwin C. Eckel and John O'Donnell had been appointed labor advisers.

Stone-Crushing Operations Characterized by Simplicity and Directness

Owners Show Confidence by Replacing All Major Machine Units This Year

By W. E. TRAUFFER

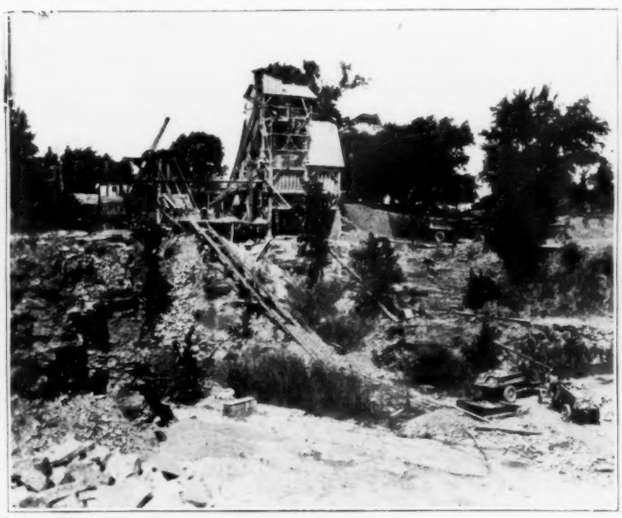
THE crushed-stone plant of J. E. Osborn & Son at Belle Center, O., is a good example of the application of progressive ideas to a small operation. Although outwardly unimpressive in appearance, the plant uses the latest approved methods and types of equipment. In 1922 J. E. Osborn bought an old plant which had been operated for many years on the present site and rebuilt it entirely. Since that time a number of improvements have been made and early this year all the major plant units were replaced with new equipment. The plant now has a capacity of 30 tons per hr. of ¾-in. stone.

The deposit was used as a building-stone quarry for many years before the first plant was built on this site. The overburden averages about 4 ft. in depth and is removed during slack seasons by the shovel and trucks used in the quarry. The face is about 30 ft. high and drilling is done with a Loomis Clipper well-drill mounted on a Mack truck chassis. Atlas powder and Cordeau fuse are used in blasting, the shots usually consisting of from 15 to 36 holes. The stratification of the deposit makes primary drilling and blasting a problem but practically eliminates any necessity for secondary breakage in the quarry.

A Marion 21 steam shovel loads the stone into two Ford 1-ton pneumatic-tired trucks which haul it a distance of about 300 ft. to the end of the quarry near the plant. Here the trucks unload from a short ramp into a steel car of 1-ton capacity. This is hauled by a single-drum hoist up the incline to the plant, where it dumps into the Good Roads Machinery Co. 10-in. by 30-in. primary jaw crusher.

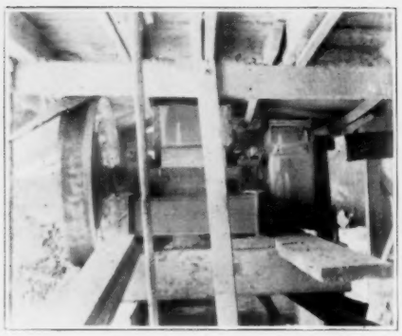
Steam shovel loading truck in quarry. Note stratification of deposit and level quarry floor.

This crusher reduces the stone to 1½-in. size and under and discharges it to a belt-bucket elevator operating on 45-ft. centers. This feeds, through a chute, a Deister Machine Co. Plat-O 4-ft. by 8-ft. triple-deck vibrating screen. Niagaralloy screen cloth is used and the decks have 1½-, ¾- and ¼-in. openings re-

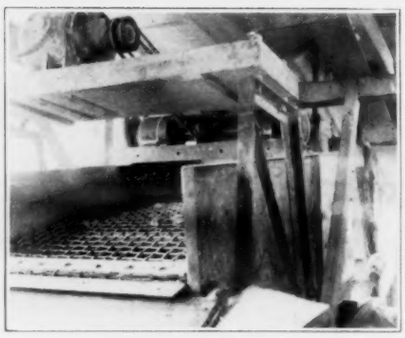


Truck dumping into skip car which discharges into plant primary crusher.

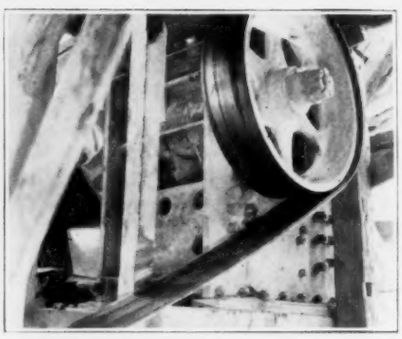
Loader rehandling sized stone from stock-pile to truck for shipment.



The 16-in. by 16-in. double-roll crusher which reduces oversize.



The 4-ft. by 8-ft. triple-deck vibrating sizing screen.



The 10-in. by 30-in. primary jaw crusher and belt drive.

spectively. The No. 3 and 4C materials retained on the center and bottom decks of this screen are discharged to a Niagara gyrating tube scrubber which discharges the washed sizes to storage.

The material (plus 1½-in.) retained on the top deck of the screen is chuted to a New Holland Machine Co. 16-in. by 16-in. double-roll crusher. This reduces it to ¾-in. size and under and discharges to the belt-bucket elevator which was previously mentioned and which returns the material to the screen.

The material passing through the ¼-in. lower deck of the screen is discharged through a chute to a 3-ft. by 4-ft., 10-ft.-long steel settling tank of the company's own make. A bucket-elevator with perforated buckets raises the finished No. 7 material from the tank and discharges it through a chute to storage. The overflow from the tank and elevator is flumed to a waste pond.

The four timber storage-bins, which support the plant framework, have a capacity of about 100 tons each. Their contents are discharged to trucks through bottom-opening gates. The plant is so arranged that some material can be stock-piled by gravity without first being sent to the bins. Trucks are used to stock-pile additional material. A Barber-Greene No. 41 gasoline-driven stock-pile loader reclaims material from the stock-piles and loads it into trucks for shipment. All shipments are made by motor trucks and are weighed on a Fairbanks truck scale.

Most of the equipment in the plant, including the hoist and the primary and secondary crushers, are driven by a 50-hp. Westinghouse motor through a flat belt and lineshafts. A single 10-hp. General Electric motor drives both bucket-elevators. The vibrating screen is driven by a 2½-hp. Howell motor and the scrubber by a 7½-hp. Continental motor through a Dayton Cog-Belt drive. Water for washing the stone is furnished from a sump in the quarry at the rate of 300 gal. per min. by a Fairbanks-Morse centrifugal pump, driven by a 7½-hp. motor of the same make.

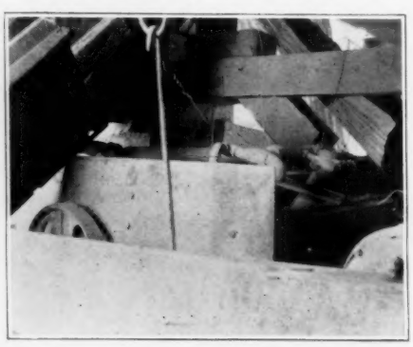
The company is engaged only in the production of crushed stone, most of which is used for road work. A highway contractor, who is doing considerable work in the vicinity of Belle Center and who obtains his aggregates from this plant, maintains batching equipment on the property. One unit is a Heltzel steel bin and weighing Agrabatcher for proportioning aggregates. A Koehring gasoline crane keeps the bin full. The cement-batching unit is one of the latest Blaw-Knox plants equipped with a screw-conveyor and screw-elevator for handling the cement from a truck hopper to the batcher bin.

Highway Work *(from page 19)*

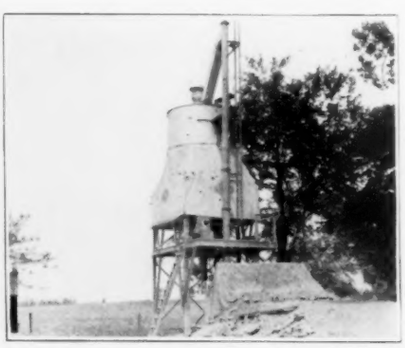
and planting the land adjoining the highways.

Winter construction for the benefit of unemployed men is provided for by special provisions in the contracts requiring prompt beginning and continued work during the winter months. It is hoped that this requirement will be of assistance not only in increasing employment, but also in increasing the demands that will be made for the products of the capital-goods industries.

The aggregate-batching plant used for highway construction.



The gyrating tube scrubber which washes all material produced.

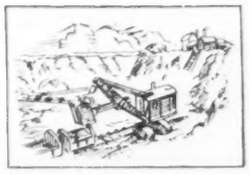


The cement-batching plant with screw-elevator in front.

MEN OF THE INDUSTRY

H. V. OWENS

H. V. OWENS, president, treasurer, and general manager of Eastern Rock Products, Inc., Utica, N. Y., in 1905 received his C. E. degree from Cornell University. He was connected in various responsible capacities with concrete railway, highway and building construction until 1910 when he formed a general contracting firm. In 1920 he became interested in the Booneville Sand Corp. This and other plants added from time to time were merged in 1929 to form the present company. Mr. Owens is president of the National Sand & Gravel Assn. of which he has been a director and member of the executive committee since 1925. He was also one of the organizers and the first chairman of the executive committee of the New York State Construction Council.



Personal Mention

B. W. Traylor

B. W. Traylor, who has for many years been connected with the Traylor Eng. & Mfg. Co., Allentown, Pa., has been appointed manager of the company's new district office at Little Rock, Ark. This office will serve western Tennessee, Arkansas, Louisiana, Texas, Oklahoma and Kansas. Mr. Traylor is expert in all of the lines of crushing, cement, lime, mining and metallurgical machinery manufactured by the company.

C. H. Shaver was elected secretary and treasurer of the United States Gypsum Co. at a meeting of the board of directors on Nov. 8. Mr. Shaver had been assistant comptroller of the company and succeeds the late R. G. Bear in his new position.

D. J. Borneman, sales representative for the Springfield-Pekin Sand & Gravel Co. for the past 10 years, has accepted a similar position with the Kingston Lake Gravel Co., Mapleton, Illinois.

T. Coolidge Sherman was elected a director of the Glens Falls Portland Cement Co., Glens Falls, N. Y., on Nov. 22 to fill the vacancy recently caused by the recent death of Frank P. Monaghan. **Byron J. Lapham** succeeded Mr. Monaghan as a member of the executive committee and **Theodore F. Kalbfleisch, Sr.,** was elected second vice president.

Frank C. Mooney has been appointed secretary of the Wolverine Portland Cement Co., Coldwater, Mich, succeeding the late Patrick H. Sweeney. **Mrs. Flora Root** succeeds Mr. Mooney as treasurer.

P. F. Balfour, former chief chemist of the Missouri Portland Cement Co., St. Louis, Mo., has resigned that position and accepted the office of managing engineer of the new Brazilian Portland Cement Co. plant near Sao Paulo, Brazil. Mr. Balfour expects to leave for his new post about Jan. 1.

Edwin C. Eckel, for many years engineering consultant, author and specialist, and more recently technical adviser to the labor advisory board of the N.R.A. for the mineral aggregates code, has been appointed chief geologist of the Tennessee Valley Authority with offices in Knoxville, Tenn.

Obituary

James F. Cohig, 37, superintendent of the Georgia Kaolin Co., Dry Branch, Ga., died recently.

William N. Hoag, 72, president of the Strasburg Lime Co., Strasburg, Va., died recently.

P. W. Gates, 76, inventor of the Gates gyratory crusher, died in Chicago, Ill., Nov. 8. He was president of the original Gates Iron Co. which made the Gates crusher until it was absorbed by the Allis-Chalmers Mfg. Co., of Milwaukee, Wis.

▼ *Coming Events* ▲

December 4-8, 1933, New York, N. Y. — Fifty-fourth annual meeting, American Society of Mechanical Engineers, Engineering Societies Bldg., 29 W. 39th St., New York, N. Y.

December 4-9, 1933. New York, N. Y.—Fourteenth Exposition of Chemical Industries. Grand Central Palace, New York.

December 7-8, 1933, Washington, D. C. — Thirteenth annual meeting of the Highway Research Board. Building of the National Academy of Sciences and National Research Council.

January 21, 1934, Cincinnati, O.—Annual meeting of directors of national crushed stone, sand and gravel, and slag associations. Netherland Plaza Hotel.

January 22, 1934, Cincinnati, O.—First organizing meeting of mineral - aggregates industries code authority. Netherland Plaza Hotel.

January 22-25, 1934, Chicago, Ill. — Annual convention and show, American Road Builders' Assn., Stevens Hotel, Chicago, Ill.

January 23-26, 1934, Cincinnati, O.—Independent conventions of National Sand & Gravel Assn., National Cr. St. Assn., and National Slag Assn. with some joint sessions. Netherland Plaza Hotel.

Samuel Rynn Morrow, Sr., manager of the Birmingham, Ala., office of the Chain Belt Co., died Oct. 29, when he contracted pneumonia after an apparently successful appendicitis operation. The management of the office will be continued by his sons.

Henry A. Woolery, 74, senior member of the stone firm of H. A. Woolery & Son, died at his home in Bloomington, Ind., on Nov. 6 of heart disease. He had been active in stone quarrying since 1890.

Edward Peterik, 40, died in a hospital at Two Rivers, Wis., recently following an operation for appendicitis. He had been engaged in the gravel business for many years and operated a modern plant on his farm.

Walter N. Damm, 42, owner of the Damm Quarries near Cape Girardeau, Mo., died recently at his home in that city of typhoid fever.

Joseph Binks, 83, head of the Binks Mfg. Co., Chicago, Ill., died at his home in Oak Park, Ill., on Nov. 27. He had retired from active participation in this business three years ago.

New Incorporations

WESTERN ROCK ASPHALT CO., Kansas City, Mo. Capital $100,000. James W. Hall, E. H. Leo Thompson, Graphic Arts Bldg., and others.

THE Y-W SAND CO., Muskogee, Okla. W. S. Dillis and H. E. West.

TOLTEC STONE CO., Fort Worth, Tex. Capital $25,000. L. G. Jordan, E. F. Springer and others.

STANDARD CLAY & SAND CO., 16511 Roselawn Ave., Detroit, Mich. New corp. Capital $75,000 ($47,500 subscribed and paid in).

TEXHOMA SAND & GRAVEL CO., Hugo, Okla. Capital $10,000. W. E. Leonard, Hugo, Okla.; Oscar Dunagan, Paris, Tex.

STAR GRAVEL CO., Mission, Tex. Capital $15,000. G. M. Abney, Logan Duncan and Ruth Abney.

READY MIXED CONCRETE CO., 1412 S. Washington St., Peoria, Ill. William G. Shmoeger, Harry J. Shmoeger and Harry J. Schofield. Bartley & Younge, 911 Jefferson Bldg., Peoria, correspondent.

BROOKS FELDSPAR CO., Alarka, N. C. Capital $10,000. M. C. Close and Allan A. Brooks.

MARION MICA MILLS, INC., Marion, N. C. Capital $100,000. W. K. M. Gilkey, Jr., and Tobe Brown.

PRINCESS ANNE SAND CORP., Diamond Springs, P. O. Norfolk, Va. Capital $15,000. Joseph H. Baker and others.

Aggregates Statistics

By H. H. HUGHES, A. T. COONS and M. ALLAN

Bureau of Mines, Department of Commerce

IN the Code of Fair Competition for the crushed-stone, sand-and-gravel, and slag industries, approved by President Roosevelt on Nov. 10, 1933, provision is made for the establishment of 16 regions to be used for administrative purposes in connection with the code. The boundaries of these regions are shown in Figs. 1 and 2.

Statistics of aggregates production, as compiled by the Bureau of Mines, have been set up in past years to show state totals. All states have not always been included because publication of some of the figures would reveal confidential returns. In Tables I and II, however, the data for all states are combined to show sand and gravel and crushed stone sold or used by producers in 1931 and 1932 by regions established in the code. These same data are presented graphically in the accompanying maps. Detailed statistics for 1932 are released here for the first time.

In Fig. 1 the total area of each circle represents the quantity of sand and gravel sold or used by producers in each region during 1931. Each black sector shows the extent of the decline in 1932. Increases in 1932 are represented by outer concentric circles, except in Regions 1 and 12, where the increases are too small to be shown graphically. The production of sand and gravel in 1931 by regions ranged from 3,403,445 short tons in Region 6 to 20,389,393 short tons in Region 9. Production, therefore, was relatively large in each of the 16 regions, with the greatest concentration, of course, in the northeastern industrial sections of the country.

Appreciable declines in production in 1932 were registered in the regions of

Table I.—SAND AND GRAVEL SOLD OR USED BY PRODUCERS, 1931 and 1932, BY REGIONS ESTABLISHED IN CODE OF FAIR COMPETITION

Regions (*See Fig. 1*)	1931			1932			Change from 1931 (*per cent.*)		
	Amount (*short tons*)	Value	Unit Value (*per ton*)	Amount (*short tons*)	Value	Unit Value (*per ton*)	Amount	Value	Unit Value
1 (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island)	11,596,489	$ 4,737,057	$0.41	11,901,918	$3,378,051	$0.28	+ 2.6	−28.7	−31.7
2 (New York)	17,155,174	10,612,014	.62	9,232,390	5,644,328	.61	−46.2	−46.8	− 1.6
3 (Pennsylvania, New Jersey, and Delaware)	12,679,598	10,474,895	.83	8,072,099	5,861,083	.73	−36.3	−44.0	−12.0
4 (West Virginia, Virginia, Maryland, and District of Columbia)	5,401,757	4,649,003	.86	5,264,261	4,514,630	.86	− 2.5	− 2.9	.....
5 (South Carolina, Georgia, Alabama, Florida, and Mississippi)	4,056,994	1,950,965	.48	2,001,030	917,128	.46	−50.7	−53.0	− 4.2
6 (North Carolina, Kentucky, and Tennessee)	3,403,445	2,176,235	.64	3,071,953	1,783,808	.58	− 9.7	−18.0	− 9.4
7 (Arkansas, Louisiana, and Texas)	12,648,125	8,120,734	.64	6,262,453	3,509,462	.56	−50.5	−56.8	−12.5
8 (Ohio)	8,387,377	5,216,816	.62	5,695,546	3,440,534	.60	−32.1	−34.0	− 3.2
9 (Illinois and Indiana)	20,389,393	9,445,995	.46	13,725,699	6,024,029	.44	−32.7	−36.2	− 4.3
10 (Michigan and Wisconsin)	13,316,257	5,322,713	.40	9,089,373	3,598,405	.40	−31.7	−32.4	.....
11 (North Dakota, South Dakota, and Minnesota)	6,955,078	3,376,224	.49	7,677,835	2,397,960	.31	+10.2	−29.0	−36.7
12 (Nebraska and Iowa)	6,507,313	2,937,234	.45	6,788,225	2,314,217	.34	+ 4.3	−21.2	−24.4
13 (Kansas, Missouri, and Oklahoma)	8,636,621	4,509,782	.52	5,993,834	3,299,588	.55	−30.6	−26.8	+ 5.8
14 (Wyoming, Colorado, New Mexico, Utah, and Arizona)	4,365,056	2,541,642	.58	6,175,411	3,303,933	.54	+41.5	+30.0	− 6.9
15 (California and Nevada)	11,859,772	7,252,583	.61	7,583,819	4,101,156	.54	−36.1	−43.5	−11.5
16 (Montana, Washington, Oregon and Idaho)	6,118,595	2,956,428	.48	11,512,051	3,433,764	.30	+88.1	+16.1	−37.5
United States	153,479,044	$86,280,320	$0.56	120,037,897	$57,522,076	$0.48	−21.8	−33.3	−14.3

Table II.—CRUSHED STONE SOLD OR USED BY PRODUCERS, 1931 and 1932, BY REGIONS ESTABLISHED IN CODE OF FAIR COMPETITION.

Regions (*See Fig. 2*)	1931			1932			Change from 1931 (*per cent.*)		
	Amount (*short tons*)	Value	Unit Value (*per ton*)	Amount (*short tons*)	Value	Unit Value (*per ton*)	Amount	Value	Unit Value (*per ton*)
1 (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island)	4,481,090	$ 5,000,365	$1.12	3,029,990	$2,899,632	$ .96	−32.4	−42.0	−14.3
2 (New York)	10,659,130	12,586,288	1.18	7,073,840	7,615,484	1.08	−33.6	−39.5	− 8.5
3 (Pennsylvania, New Jersey, and Delaware)	9,056,950	9,919,755	1.10	7,221,710	7,498,210	1.04	−20.3	−24.4	− 5.5
4 (West Virginia, Virginia, Maryland, and District of Columbia [b])	4,636,320	4,686,714	1.01	3,900,270	3,948,572	1.01	−15.9	−15.7	.....
5 (South Carolina, Georgia, Alabama, Florida, and Mississippi [b])	4,292,230	4,235,731	.99	2,212,280	1,851,262	.84	−48.5	−56.3	−15.2
6 (North Carolina, Kentucky, and Tennessee)	4,390,350	4,127,878	.94	2,934,030	2,505,077	.85	−33.2	−39.3	− 9.6
7 (Arkansas, Louisiana, and Texas)	2,164,150	2,172,324	1.00	1,161,930	1,128,268	.97	−46.3	−48.1	− 3.0
8 (Ohio)	7,016,620	4,592,285	.65	4,876,600	3,284,593	.67	−30.5	−28.5	+ 3.1
9 (Illinois and Indiana)	5,832,030	4,031,445	.69	4,322,640	2,981,936	.69	−25.9	−26.0	.....
10 (Michigan and Wisconsin)	3,043,530	2,594,935	.85	2,149,710	1,601,389	.74	−29.4	−38.3	−12.9
11 (North Dakota, South Dakota, and Minnesota)	452,710	517,206	1.14	381,140	363,444	.95	−15.8	−29.7	−16.7
12 (Nebraska and Iowa)	1,117,320	1,042,179	.93	1,518,230	1,321,437	.87	+35.9	+26.8	− 6.5
13 (Kansas, Missouri, and Oklahoma)	4,817,310	4,663,351	.97	3,612,970	3,288,225	.91	−25.0	−29.5	− 6.2
14 (Wyoming, Colorado, New Mexico, Utah, and Arizona)	1,062,090	1,034,249	.97	555,540	487,967	.88	−47.7	−52.8	− 9.3
15 (California and Nevada)	4,856,480	4,521,054	.93	3,172,000	2,651,983	.84	−34.7	−41.3	− 9.7
16 (Montana, Washington, Oregon, and Idaho)	3,883,450	3,464,647	.89	3,152,010	2,527,925	.80	−18.8	−27.0	−10.1
United States [a]	72,624,410	$70,404,964	$0.97	51,995,100	$46,891,765	$0.90	−28.4	−33.4	− 7.2

[a] United States figures do not exactly equal totals of districts because returns from a few companies have not been included in stage figures.
[b] No crushed-stone production reported in the District of Columbia or in Mississippi.

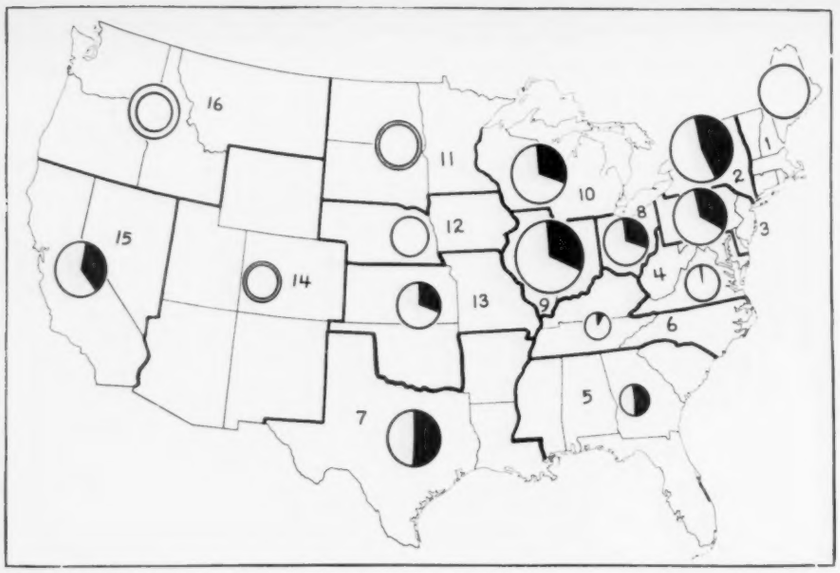


Fig. 1. Sand and gravel sold or used in 1931 and 1932 by code regions. Total area of each circle represents 1931 tonnage, black sectors show decline in 1932, outer concentric circles show increase in 1932.

large production around the Great Lakes and the Atlantic Seaboard. California and the South also showed large declines. On the other hand, production in New England, the Rocky Mountain states, and the Northwest was greater in 1932 than in 1931. This increase for the most part reflects accelerated activity by states, counties, and municipalities; noncommercial production in these regions having increased considerably in 1932. As may be expected, the unit value, in general, declined most in those regions where production increased. This indicates a relatively higher proportion of unprepared material.

Crushed-stone production is summarized in Table II and Fig. 2. Noncommercial production makes up a lesser proportion of the total crushed-stone output, and, as a result, only one region, Nebraska and Iowa, showed an increase in 1932 over 1931. Of interest, too, is the fact that crushed-stone production also tends toward concentration in the industrial Northeast, with only a small output in the Rocky Mountain states. In general, the unit value of crushed stone held up better than that of sand and gravel in 1932.

Prior to 1931 the total crushed-stone and sand-and-gravel sales reported to the Bureau of Mines were representative of the aggregates industries within reasonable limits of accuracy. Some material produced by states, counties, municipalities, and other government agencies was included in the totals each year, but these quantities amounted to only about 10 per cent. or less of the totals. These data are summarized in Table III.

By 1931, however, the noncommercial production of sand and gravel had increased to 24,540,355 short tons, representing 16 per cent. of the total. A further increase to 34,748,821 short tons, 29 per cent. of the total accounted for, was recorded in 1932. Meanwhile, noncommercial production of crushed stone in 1932 amounted to 8,710,910 short tons, almost 17 per cent. of the total.

Complete statistical coverage of aggregates production by states, counties, and municipalities is impossible without a field staff. As a result, the reports of noncommercial production may not be received from strictly comparable sources each year. Although part of the large increase in the production of this material since 1928 may be due to more complete statistical returns, much of it is due directly to local activity in road construction in connection with projects designed to relieve unemployment. In 1932, for example, notable increases in the noncommercial production of sand and gravel were recorded in Colorado, Idaho, Iowa, Montana, New Mexico, North Dakota, Rhode Island, Tennessee, and Washington.

Table III.—SAND AND GRAVEL AND CRUSHED STONE SOLD OR USED IN THE UNITED STATES BY COMMERCIAL AND NON-COMMERCIAL OPERATORS, 1928-1932 (*a*).

Year	Commercial Operations		Noncommercial Operations (*b*)		Total Accounted For	
	Amount (*short tons*)	Change From Year Before (*per cent.*)	Amount (*short tons*)	Change From Year Before (*per cent.*)	Amount (*short tons*)	Change From Year Before (*per cent.*)
Sand and Gravel						
1928	199,519,577	.....	9,599,231	.....	209,118,808	.....
1929	206,218,734	+ 3.4	16,353,171	+70.4	222,571,905	+ 6.4
1930	176,880,106	−14.2	20,171,620	+23.3	197,051,726	−11.5
1931	128,938,689	−27.1	24,540,355	+21.7	153,479,044	−22.1
1932	85,289,076	−33.9	34,748,821	+41.6	120,037,897	−21.8
Crushed Stone						
1928	.....	.....	.....	.....	91,265,360	.....
1929	85,409,260	.....	7,312,000	.....	92,721,260	+ 1.6
1930	79,560,890	− 6.8	7,550,000	+ 3.3	87,110,890	− 6.1
1931	64,818,410	−18.5	7,806,000	+ 3.4	72,624,410	−16.6
1932	43,284,190	−33.2	8,710,910	+11.6	51,995,100	−28.4

a The figures for "noncommercial operations" represent tonnages reported by states, counties, municipalities, and other government agencies, produced either by themselves or by contractors expressly for their consumption, often with publicly-owned equipment. They do not include purchases from commercial producers.

The figures for "commercial operations" represent tonnages reported by all other producers, including relatively-small amounts of railroad ballast and fill produced directly by railroad carriers for their own use.

b Part of the apparent large increase in noncommercial production is due to more complete reports in the later years. Even the 1932 figures are probably not complete, as it is often difficult for the local authorities to supply this information.

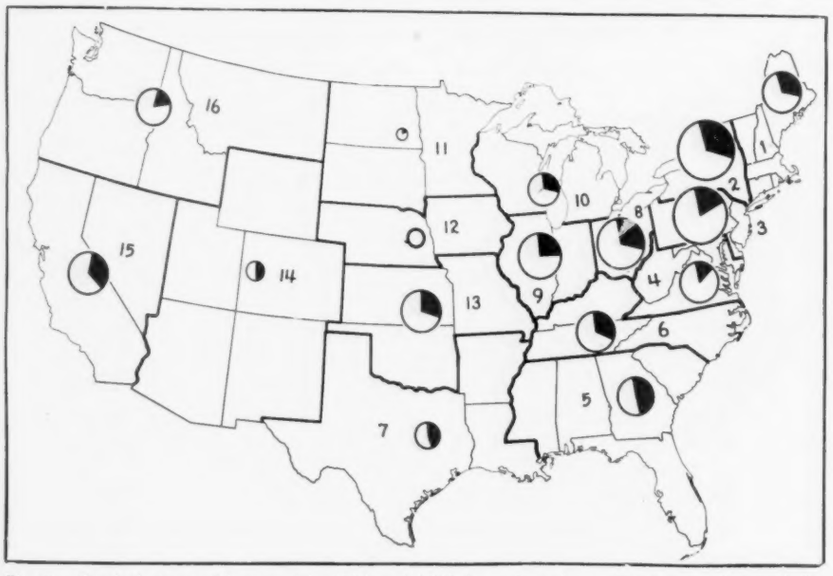


Fig. 2. Crushed stone sold or used in 1931 and 1932 by code regions. Total area of each circle represents 1931 tonnage, black sectors show decline in 1932, outer concentric circles show increase in 1932.

Less than one-third of the sand and gravel produced by government agencies, 7,727,085 short tons in 1931 and 8,057,448 short tons in 1932, was screened, washed, or otherwise prepared, making it comparable in quality to the output of the average commercial plant. By far the larger part, however, consisted of pit-run material having a low unit value. The average value of all noncommercial sand and gravel in 1932 was 29 c. a ton, as contrasted with 56 c. a ton for the output of the commercial plants.

The inclusion of a variable quantity of low-grade material produced by states, counties, and municipalities obviously tends to obscure the trends in production by plants producing prepared sand and gravel or crushed stone to be sold in competitive markets. In recognition of the importance of segregating the noncommercial production of aggregates, the Bureau of Mines presents for the first time in 1932 a statistical breakdown to show the production by states, counties, and municipalities (noncommercial), in their proper relation to sales by privately-owned plants (commercial). The data are summarized in Table IV.

Because of the unforeseen increase in noncommercial production, the preliminary estimates of 89,000,000 short tons of sand and gravel and 46,800,000 short tons of crushed stone fall below the total quantities of 120,037,897 short tons and 51,995,100 short tons finally reported. This discrepancy, however, is less serious than it appears upon first glance, because the declines recorded by the commercial sand-and-gravel and crushed-stone industries conform in general with the estimated declines.

Appreciable errors occur only in those items heavily weighted by noncommercial production. For sand and gravel most of the error occurred in connection with paving gravel, an item in which 56 per cent. of the total 56,533,469 short tons represented noncommercial production. These results illustrate the impossibility of forecasting the noncommercial production of sand and gravel or crushed stone, especially during a period when "make-work" campaigns are considered a necessary form of public relief. The commercial production of aggregates, however, conforms closely to available indicators of markets.

Chicago Pneumatic Tool Opens Seattle Branch

The Chicago Pneumatic Tool Co., Chicago, Ill., has opened a branch at 1028 Sixth Ave., South, Seattle, Wash.

Table IV.—SAND AND GRAVEL AND CRUSHED STONE SOLD OR USED BY COMMERCIAL AND NONCOMMERCIAL PRODUCERS IN THE UNITED STATES, 1931 AND 1932

	1931			1932			Change from 1931 (*per cent.*)		
	Amount (*short tons*)	Value	Unit Value (*per ton*)	Amount (*short tons*)	Value	Unit Value (*per ton*)	Amount	Value	Unit Value (*per ton*)
SAND AND GRAVEL									
Commercial operations									
Sand:									
Glass	1,677,882	$ 2,779,245	$1.66	1,370,255	$ 2,266,564	$1.65	−18.3	−18.4	− 0.6
Molding	2,138,305	2,122,049	.99	1,118,146	1,051,702	.94	−47.7	−50.4	− 5.1
Building	25,154,296	13,653,565	.54	14,597,631	7,507,700	.51	−42.0	−45.0	− 5.6
Paving	25,362,674	12,558,050	.50	17,194,553	7,623,597	.44	−32.2	−39.3	−12.0
Grinding and polishing	607,589	1,105,213	1.82	419,691	638,556	1.52	−30.9	−42.2	−16.5
Fire or furnace	88,189	131,640	1.49	36,698	54,371	1.48	−58.4	−58.7	− 0.7
Engine	1,604,123	1,012,548	.63	1,151,011	688,563	.60	−28.2	−32.0	− 4.8
Filter	55,319	119,825	2.17	68,035	92,751	1.36	+23.0	−22.6	−37.3
Other[1]	5,683,266	2,050,348	.36	4,486,655	1,463,650	.33	−21.1	−28.6	− 8.3
Total sand	62,371,643	35,532,483	.57	40,442,675	21,387,454	.53	−35.2	−39.8	− 7.0
Gravel:									
Building	21,377,015	15,411,716	.72	13,064,368	9,549,698	.73	−38.9	−38.0	+ 1.4
Paving	34,346,857	21,998,870	.64	25,137,550	14,727,893	.59	−26.8	−33.1	− 7.8
Railroad ballast[2]	10,843,174	3,528,684	.33	6,644,483	1,823,993	.27	−38.7	−48.3	−18.2
Total gravel	66,567,046	40,939,270	.62	44,846,401	26,101,584	.58	−32.6	−36.2	− 6.5
Total sand and gravel	128,938,689	76,471,753	.59	85,289,076	47,489,038	.56	−33.9	−37.9	− 5.1
Noncommercial operations (by States, counties, and municipalities, directly or under lease):									
Sand:									
Building	24,276	7,491	.31	147,636	97,283	.66	+508.2	+1,198.7	+112.9
Paving	2,096,907	1,156,772	.55	2,204,564	1,013,337	.46	+ 5.1	−12.4	−16.4
Total sand	2,121,183	1,164,263	.55	2,352,200	1,110,620	.47	+10.9	− 4.6	−14.5
Gravel:									
Building	49,799	37,993	.76	1,000,702	253,931	.25	+1,909.5	+568.4	−67.1
Paving	22,369,373	8,606,311	.38	31,395,919	8,668,487	.28	+40.4	+ 0.7	−26.3
Total gravel	22,419,172	8,644,304	.39	32,396,621	8,922,418	.28	+44.5	+ 3.2	−28.2
Total sand and gravel	24,540,355	9,808,567	.40	34,748,821	10,033,038	.29	+41.6	+ 2.3	−27.5
Commercial and noncommercial:									
Sand	64,492,826	36,696,746	.57	42,794,875	22,498,074	.53	−33.6	−38.7	− 7.0
Gravel	88,986,218	49,583,574	.56	77,243,022	35,024,002	.45	−13.2	−29.4	−19.6
Grand total	153,479,044	86,280,320	.56	120,037,897	57,522,076	.48	−21.8	−33.3	−14.3
CRUSHED STONE									
Commercial operations									
Concrete and road metal	58,005,520			39,309,650			−32.2		
Railroad ballast	6,812,890	5,496,455	.81	3,974,540	3,239,991	.82	−41.7	−41.1	+ 1.2
Noncommercial operations									
Concrete and road metal	7,806,000			8,710,910			+11.6		
Total									
Concrete and road metal	65,811,520	64,908,509	.99	48,020,560	43,651,774	.91	−27.0	−32.7	− 8.1
Railroad ballast	6,812,890	5,496,455	.81	3,974,540	3,239,991	.82	−41.7	−41.1	+ 1.2
Grand total	72,624,410	70,404,964	.97	51,995,100	46,891,765	.90	−28.4	−33.4	− 7.2
CRUSHED STONE AND SAND AND GRAVEL									
Commercial operations	193,757,099			128,573,266			−33.6		
Noncommercial operations	32,346,355			43,459,731			+34.4		
Grand total	226,103,454	156,685,284	.69	172,032,997	104,413,841	.61	−23.9	−33.4	−11.6

[1]Includes some sand used for railroad ballast, fills, etc.
[2]Includes some gravel used for fills and other purposes. The quantity of gravel reported as used exclusively for railroad ballast was as follows: 1931: 8,814,907 tons, valued at $2,898,598; 1932: 5,113,862 tons, valued at $1,513,240. Includes ballast produced by railroads for their own use, which amounted in 1932 to 2,140,154 tons, valued at $293,328.

Latest Portland-Cement Statistics

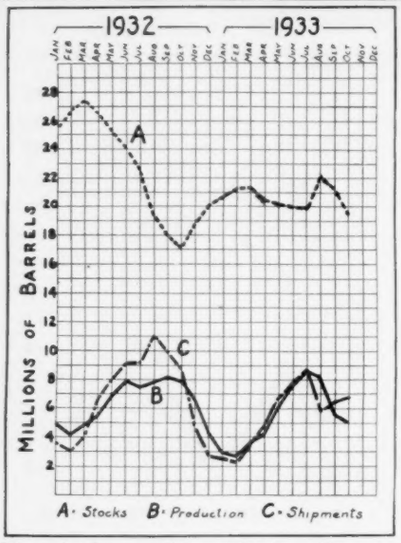


Chart showing monthly production, shipments and stocks on hand at end of month from January, 1932, to October, 1933.

THE Portland-cement industry in October, 1933, produced 5,037,000 bbl., shipped 6,750,000 bbl. from the mills, and had in stock at the end of the month 19,503,000 bbl. Production in October, 1933, showed a decrease of 36.6 per cent. and shipments a decrease of 22.8 per cent., as compared with October, 1932. Portland-cement stocks at the mills were 14.2 per cent. higher than a year ago. The mill value of the shipments — 49,135,000 bbl. — in the first nine months of 1933 is estimated as $62,649,000.

The statistics here given are from all manufacturing plants except two, for which estimates have been included in lieu of actual returns.

In the following statement of relation of production to capacity the total output of finished cement is compared with the estimated capacity of 163 plants at the close of October, 1933, and of 165 plants at the close of October, 1932.

RATIO (*per cent.*) OF PRODUCTION TO CAPACITY

	October		Sept.	August	July
	1932	1933	1933	1933	1933
The month..	34.6	22.1	25.5	35.9	37.6
The 12 months ended	29.6	24.5	25.5	26.5	26.3

PRODUCTION, SHIPMENTS, AND STOCKS OF FINISHED PORTLAND CEMENT, BY MONTHS, IN 1932 AND 1933 (*In thousands of barrels*)

Month	Production		Shipments		Stocks At End of Month	
	1932	1933	1932	1933	1932	1933
January	5,026	2,958	3,393	2,502	25,778	20,624
February	3,971	2,777	3,118	2,278	26,657	21,125
March	4,847	3,684	3,973	3,510	27,545	21,298
April	5,478	4,183	6,536	4,949	26,496	20,542
May	6,913	6,262	8,020	6,709	25,394	20,117
June	7,921	7,804	9,264	7,979	24,043	19,936
July	7,659	8,609	9,218	8,697	22,512	19,848
August	7,835	8,223	10,968	5,994	19,398	22,078
September	8,210	5,638	9,729	6,517	17,878	a21,216
October	7,939	5,037	8,743	6,750	17,084	19,503
November	6,462	.....	4,782	.....	18,788	.....
December	4,248	.....	2,835	.....	20,205	.....
Totals	76,509	.....	80,579	.....	.....	.....

a Revised.

PRODUCTION AND STOCKS OF CLINKER BY MONTHS, IN 1932 AND 1933 (*In thousands of barrels*)

Month	Production		Stocks End of Month		Month	Production		Stocks End of Month	
	1932	1933	1932	1933		1932	1933	1932	1933
January	6,107	3,036	8,184	6,092	July	6,613	8,569	7,889	6,832
February	5,176	3,110	9,375	6,422	August	7,078	7,835	7,175	6,474
March	5,443	4,147	10,025	6,890	September	7,703	5,600	6,708	a6,507
April	5,924	4,520	10,511	7,146	October	7,259	4,745	6,093	6,203
May	6,273	5,848	9,922	6,769	November	6,290	.....	5,938	.....
June	6,803	7,836	8,877	6,840	December	4,335	.....	5,995	.....

a Revised.

DISTRIBUTION OF CEMENT

Shipped to—	August		September		Shipped to—	August		September	
	1932	1933	1932	1933		1932	1933	1932	1933
Alabama	43,836	43,833	19,699	37,662	New Jersey	342,947	136,598	263,670	208,873
Alaska	1,570	1,153	660	870	New Mexico	11,438	10,334	10,703	10,141
Arizona	10,833	7,173	16,834	9,568	New York	1,437,016	671,520	1,210,601	755,060
Arkansas	33,764	37,875	26,628	36,334	North Carolina	45,680	28,750	24,053	38,023
California	410,822	467,953	361,507	465,552	North Dakota	16,872	8,634	28,640	15,346
Colorado	58,040	62,639	59,394	59,528	Ohio	774,702	224,994	678,551	252,557
Connecticut	100,729	52,886	63,306	64,110	Oklahoma	135,342	65,182	127,325	75,504
Delaware	32,173	3,729	17,278	24,153	Oregon	63,606	29,112	44,597	27,519
Dist. of Col	109,666	92,921	119,017	82,678	Pennsylvania	604,752	365,210	500,591	390,921
Florida	49,148	40,668	28,320	33,952	Porto Rico	820	7,088	2,775	12,125
Georgia	106,631	29,751	72,034	27,079	Rhode Island	31,578	11,673	17,542	19,214
Hawaii	17,666	9,728	26,747	13,299	South Carolina	22,402	10,640	8,681	11,846
Idaho	10,689	12,859	5,582	15,348	South Dakota	32,468	11,546	90,970	28,590
Illinois	867,859	996,408	779,476	881,269	Tennessee	118,730	39,283	114,020	42,073
Indiana	557,005	238,572	441,616	218,104	Texas	392,333	210,589	310,541	189,125
Iowa	431,321	142,845	563,793	223,434	Utah	25,011	38,615	11,733	41,750
Kansas	91,387	60,913	92,223	56,824	Vermont	56,063	12,785	29,887	20,088
Kentucky	207,134	135,378	230,591	122,957	Virginia	115,664	56,154	85,343	61,636
Louisiana	167,844	28,325	193,661	46,683	Washington	168,362	84,254	140,586	84,053
Maine	77,546	35,521	29,894	26,523	West Virginia	93,479	49,891	119,731	60,768
Maryland	214,006	74,145	190,030	84,291	Wisconsin	630,006	176,011	459,686	256,521
Massachusetts	308,259	121,269	202,039	176,491	Wyoming	8,387	5,924	11,247	7,619
Michigan	482,658	287,724	659,003	294,624	Unspecified	2,525		11,986	8,680
Minnesota	646,666	137,415	390,343	231,437		10,944,313	5,928,970	9,694,624	6,487,113
Mississippi	58,429	60,345	63,668	67,327	Foreign countries	23,687	65,030	34,376	29,887
Missouri	474,524	230,012	445,735	229,929					
Montana	19,274	12,275	28,855	15,255	Total shipped from cement plants	10,968,000	5,994,000	9,729,000	6,517,000
Nebraska	96,855	33,921	134,212	86,104					
Nevada	97,967	184,288	77,744	210,456					
New Hampshire	29,829	31,659	51,276	27,240					

PRODUCTION AND STOCKS OF CLINKER (Unground Cement), BY DISTRICTS, in OCTOBER, 1932 and 1933 (*In thousands of barrels*)

District	Production		Stocks at End of Month	
	1932	1933	1932	1933
Eastern Pa., N. J., and Md	1,369	617	744	913
New York & Maine	445	324	404	253
Ohio, Western Pa., and W. Va	849	341	455	593
Michigan	530	309	832	770
Wis., Ill., Ind., and Ky	1,148	778	267	505
Va., Tenn., Ala., Ga., Fla., and La	520	216	516	481
Eastern Mo., Ia., Minn. and S. Dak	894	712	375	416
W. Mo., Nebr., Kans., Okla., and Ark	592	361	387	348
Texas	167	115	196	197
Colo., Mont., Utah, Wyo., and Idaho	193	117	303	153
California	446	803	1,350	1,277
Oregon and Washington	106	52	264	297
Totals	7,259	4,745	6,093	6,203

PRODUCTION, SHIPMENTS, AND STOCKS OF FINISHED PORTLAND CEMENT, BY DISTRICTS, IN OCTOBER, 1932 AND 1933 AND STOCKS IN SEPTEMBER, 1933 (*In thousands of barrels*)

District	October						Stocks at End of September
	Production		Shipments		Stocks at End of Month		
	1932	1933	1932	1933	1932	1933	1933
Eastern Pa., N. J., and Md	1,457	674	1,566	1,129	3,782	3,990	4,445
New York & Maine	486	427	668	463	1,314	1,735	1,771
Ohio, Western Pa., and W. Va	1,053	371	829	641	2,352	2,893	3,162
Michigan	640	342	665	366	1,249	1,617	1,641
Wis., Ill., Ind., and Ky	1,242	836	1,375	943	1,388	1,662	1,770
Va., Tenn., Ala., Ga., Fla., and La	488	175	580	423	1,278	1,530	1,778
Eastern Mo., Ia., Minn. and S. Dak	927	695	1,306	1,043	1,513	1,993	2,341
W. Mo., Nebr., Kans., Okla., and Ark	634	373	631	511	1,534	1,673	1,811
Texas	218	113	381	205	546	715	807
Colo., Mont., Utah, Wyo., and Idaho	185	182	144	164	548	346	328
California	443	757	473	725	1,063	1,016	984
Oregon and Washington	166	92	125	137	517	333	378
Totals	7,939	5,037	8,743	6,750	17,084	19,503	21,216

Self-Interest Demands It---

THE coming conventions of the National Crushed Stone Association, the National Sand & Gravel Association and the National Slag Association will be the first gatherings of these industries since President Roosevelt's approval of their Code of Fair Competition. They will provide your first opportunity to discuss with other producers the problems raised by actual operation under the code. Each of the three associations will hold a separate convention, but all three conventions will run concurrently and there will be joint sessions for complete interchange of ideas between members of the three industries.

The Board of Directors of each association will meet separately on Sunday, January 21.

The Code Authority (for all three industries) will meet Monday, January 22.

Separate sessions of the 17th Annual Convention of the National Crushed Stone Association, the 18th Annual Convention of the National Sand & Gravel Association, and the Annual Convention of the National Slag Association will open Tuesday, January 23, and continue through Friday, January 26.

Arrangements for reduced railroad fares are in progress and full information will be announced later. The Netherland Plaza Hotel, Cincinnati, where the meetings will be held, will send registration cards to all producers before the conventions, enabling them to make reservations in advance. Self-interest demands that you attend.

Decide AT ONCE which members of your company should attend, and make your reservations EARLY.

1934 Meetings

Board of Directors
January 21

Code Authority
January 22

Conventions
January 23-26

Netherland Plaza Hotel
Cincinnati

NATIONAL CRUSHED STONE ASSOCIATION
NATIONAL SAND & GRAVEL ASSOCIATION
NATIONAL SLAG ASSOCIATION

Recent Patents

AMERICAN

Cement Manufacture

Low-soluble cement. Eugene L. Chappell, Pittsburgh, Pa., assignor to National Tube Co. No. 1,916,157.

Apparatus and process for making cement. Donald C. Coulson, Chicago, Ill., assignor to Oliver United Filters, Inc., San Francisco, Cal. No. 1,916,417.

Process for manufacture of Portland cement. Louis A. Dahl and Wilson C. Hanna, Colton, Cal., assignors to California Portland Cement Co., Los Angeles, Cal. No. 1,916,716.

Drilling

Rock-drill mounting. Charles A. Hultquist, Los Angeles, Cal., assignor to Independent Pneumatic Tool Co., same place. No. 1,914,430.

Power feed for rock drills. Gustave M. Nell, Detroit, Mich., assignor to Chicago Pneumatic Tool Co. No. 1,914,815.

Rock-drilling mechanism. William A. Smith, Sr., Easton, Pa., and William A. Smith, Jr., Phillipsburg, N. J., assignors to Ingersoll-Rand Co. No. 1,917,335.

Rock drill. Edward F. Terry, Phillipsburg, N. J., assignor to Ingersoll-Rand Co. No. 1,918,065.

Rock-drill. George H. Fuehrer, Easton, Pa., assignor to Ingersoll-Rand Co. No. 1,919,717.

Rock-drill. Led L. Richardson, Cleveland, Ohio, assignor to Cleveland Rock Drill Co. No. 1,922,329.

Excavating

Power shovel, crane, dragline, and the like. Henry W. Karaska, South Harry H. Barber, Aurora, Ill., as-

Laterally shiftable digging boom. Milwaukee, Wis. No. 1,914,692.
signor to Barber-Greene Co., same place. No. 1,916,247.

Digging bucket. Harry H. Barber, assignor to Barber-Greene Co. No. 1,916,354.

Excavating shovel. Herman J. Brendlin, New York, N. Y., assignor to Hayward Co., same place. No. 1,917,492.

Earth-discharging mechanism for excavators. Norman DeWind, Newton, Ia., assignor to Parsons Co., same place. No. 1,917,508.

Welded dipper-stick construction. Leslie A. Russell, Milwaukee, Wis., assignor to Koehring Co. No. 1,917,666.

Excavator apparatus. Louis E. Dierks, Oak Park, Ill., assignor to Sauerman Bros., Inc., Chicago, Ill. No. 1,917,955.

Dipper-tooth. Fred Finkl, Chicago, Ill., assignor to A. Finkl & Sons Co., same place. No. 1,918,841.

Grubbing attachment for excavating-machines. Alvin C. Rasmussen, Indianapolis, Ind., assignor to Insley Mfg. Co., same place. No. 1,919,075.

Drag-line excavator. Frederick Lang, Cincinnati, Ohio. No. 1,919,228.

Excavating-machine. Edmund J. Kane, Chicago, Ill. No. 1,919,515.

Method and apparatus for mining double or parted seams. Erskine Ramsay, Birmingham, Ala. No. 1,919,528.

Mining-machine. Charles F. Osgood, Claremont, N. H., assignor to Sullivan Machinery Co. No. 1,920,271.

Extension boom for cranes. Charles E. Forsythe and James A. Forsythe, New York, N. Y. No. 1,920,370.

Mining-machine. Frederick W. Vodoz, Wilmette, Ill., assignor to Goodman Mfg. Co. No. 1,920,450.

Dipper front. Samuel G. Llewellyn, Evanston, Ill., assignor to Pettibone Mulliken Co. No. 1,920,703.

Excavating apparatus. Loudon E. McFadyen, Easton, Pa., assignor to Taylor-Wharton Iron & Steel Co., High Bridge, N. J. No. 1,920,873.

Power shovel dipper. Lester W. Van Buskirk, Easton, Pa., No. 1,921,491.

Power excavator. Walter Ferris, Milwaukee, Wis., assignor to Bucyrus-Erie Co. No. 1,922,285.

Explosives

Mining cartridge. Ralph J. Meyer, Denver, Colo. No. 1,915,687.

Lime Manufacture

Lime kiln. William J. Kuntz, York, Pa. No. 1,915,322.

FOREIGN

Cement Manufacture

Process for producing fused Portland cement. Fried. Krupp Grusonwerk A. G., Magdeburg-Buckau. German 566,496, addition to 482,327.

Apparatus for producing cement. Arno Andreas, Munster, Westphalia. German 568,746.

Production of cement. J. E. Pollak (Hoesch-Koln Neuessen Akt.-Ges. für Bergbau und Hüttenbetrieb). British 389,354.

Crushing and Grinding

Process and apparatus for wet grinding of cement raw materials. M. Vogel-Jorgensen. French 743,627.

Sifters for impact pulverizers. Paul Anger, Kiel. German 517,225 and 535,348, addition to 510,849.

Compound tube mill. Heinrich Rückert, Wetzlar-Niedergirmes. German 566,935.

Feed hopper for roll crushers. Fried. Krupp Grusonwerk A. G., Magdeburg-Buckau. German 568,722.

Roll crusher and grinder. Paul von Knüpffer, Berlin-Charlottenburg. German 568,599, addition to 524,601.

Device for cooling material ground in ball or tube mills with intermediate compartment. G. Polysius A. G., Dessau. German 568,723.

Grinding and pulverizing mills. British Rema Manufacturing Co., Ltd., and P. Howden. British 388,505.

Control systems for pulverized material. Bailey Meter Co. British 389,300.

Excavating

Tipping buckets for excavators. Orenstein & Koppel A.-G. British 390,031.

Suction dredges. A. Webert. British 390,267.

Kilns

Rotary kilns, dryers and the like. E. Allen & Co., Ltd., and W. Gilbert. British 388,745.

Burning of sludgy materials. W. W. Triggs (G-Polysius A. G.). British 389,083.

Lime

Manufacture of building blocks with the aid of lime. C. H. Harrison and A. H. Harrison. French 734,892.

Synthetic cellular building material made by carbonating lime. The Carbonated Lime Processes Ltd., Toronto, Ont., assignee of Charles H. Harrison, Iron Acton, Gloucestershire, England, and Arthur H. Harrison, Gold Pines, Ont. Canadian 330,515.

Cellular blocks of calcium carbonate. The Carbonated Lime Prosesses Ltd., Toronto, assignee of Arthur H. Harrison, Gold Pines, Ont. Canadian 330,516.

Screening and Separating

Apparatus for sizing granular materials. M. Bouquet. British 383,885.

Rotary wet classifiers. H. Hardinge. British 389,338.

Pneumatic apparatus for separating or sorting solid materials. E. Laurent. British 389,769.

Unclassified

New powder for mortars, concrete units, etc. A. R. Tabary. French 742,075.

Process for making a concrete or mortar aggregate by sintering clay. John E. Greenawalt, New York City. German 562,485.

Process for preparing refractories (refractory clays, shales, dolomites, magnesite) adulterated with iron compounds. Rudolf Rademacher and Eberhard Goebel, Neurode, Eulengebirge. German 563,055.

Method of and apparatus for determining the character and/or condition of aggregates. Stern-Ges. für Moderne Grundbantechnik. British 389,604.

PIT AND QUARRY *will furnish, at its actual cost, a copy of any patent cited herein. A charge of ten cents per copy is made by the U. S. Patent Office, Washington, D. C., and readers may procure a copy directly by addressing the Commissioner of Patents, with payment for copies requested. Postage stamps are not accepted by the Patent Office. We will endeavor to obtain copies of foreign patents for our readers but we cannot give assurance in every case for the reason that copies of such patents are not printed for distribution as liberally as are the American copies, nor is there a fixed charge per copy.*

Traffic News and Comment

Recent I. C. C. Decisions

Cement.—In response to fourth-section application No. 15,212, the Interstate Commerce Commission has authorized the Colorado & Southern, and other carriers, to establish rates on cement from Chanute, Kan., Kansas City, Mo., and points in the same group, also from Superior, Neb., to destinations on the Colorado & Southern in New Mexico, Clayton to Emery Gap, inclusive, the same as now apply over more direct routes, and to publish higher rates to intermediate points, provided that the rates to the intermediate points shall not exceed the rates made on the basis of scale IV in Western Cement Rates, 69 I. C. C. 644, and in Oklahoma Portland Cement Co. *v.* D. & R. G. W., 128 I. C. C. 63—I. C. C. F. S. O. No. 11,388.

Sand.—In a case considered by the entire commission the rates on sand from Frisbie, Kan., to destinations in Missouri have been found not unduly prejudicial. In the decision in Sand, Gravel and Crushed Stone, 177 I. C. C. 621, rates were prescribed from Holliday, Kan., and grouped points. In the present complaint the prescribed rates were attacked as being preferential to shippers at Holliday. The commission decided that the situation complained of was a result of the location of Frisbie, being beyond the 15-mi. area from which the rates were prescribed in the former case. Commissioners Brainerd and Lee joined in the dissenting opinion of Commissioner McManamy, in which he said that undue prejudice did exist, and that it resulted from the arbitrary application of a single-line scale from Holliday and from the use of averages in determining distances.—I. C. C. Docket No. 25,887, Welch-Sandler Sand Co. *v.* A. T. & S. F. *et al.*

Sand and Gravel.—On petition of the Georgia and South Carolina commissions, Atlanta Freight Bureau, American Short-Line Railroad Assn., Piedmont & Northern and Greenville & Northern Railroads, Saluda Crushed Stone Co., Tennessee Quarry Co., and others a rehearing was had on various cases involving the rates on crushed stone, sand, gravel and related commodities between points in Georgia, South Carolina and other southern states. On previous hearings the commission has reported on these rates in 122 I. C. C. 133; 140 I. C. C. 85; 160 I. C. C. 309; 165 I. C. C. 731 and 177 I. C. C. 123. A scale of rates had been prescribed with an arbitrary for joint-line hauls of less than 500 mi. An additional arbitrary of 25c. per ton was also allowed for certain short or weak lines, when they participated in the movement. In seeking the reöpening of these proceedings, the petitioners also sought a scale of rates for both single- and joint-line movement with the elimination of the 25c. short-line arbitrary. The rates published by carriers of the Atlantic Coast Line family including the Charleston & Western Carolina, Georgia Railroad, Western Railway of Alabama, Atlanta & West Point, the Atlanta, Birmingham & Coast and the Atlantic Coast Line and designed to hold the traffic to the rails of these carriers were suspended. This suspension was heard with the other reöpened cases. In the present report the commission has found that the evidence fails to justify the prescription of a single scale for both single- and joint-line hauls. It has also found that a discontinuance of the authority to apply the 25c. arbitrary to hauls over short or weak lines is not justified, although it pointed out that the addition of this arbitrary was optional with the short or weak line. It was further found that no justification had been shown for a modification of the original findings in the matter of the rates on sand, gravel and crushed stone within the state of South Carolina. In connection with the suspension proceeding it was found that the suspended schedules had not been justified in so far as they would change the rates on traffic moving from or to points on the Clinchfield or on the Columbia, Newberry & Laurens, or over either of these lines or the lines of the respondents mentioned before as members of the Atlantic Coast Line family. Commissioners McManamy and Lee dissented from the first finding. They did not agree that there should be an arbitrary added for joint-line hauls of less than 500 mi. I. C. C. Docket No. 17,517 rates on chert, clay, sand and gravel, within the state of Georgia; No. 17,699, Roquemore Gravel Co. *v.* A. B. & A. *et al.*; No. 17,699 Sub. 1, Same *v.* Same; No. 17,689, Same *et al. v.* Same; No. 17,763, Same *v.* Same; No. 17,764, Dixie Sand and Gravel Co. *v.* Same; No. 17,764, Sub 1, Same *v.* Same; No. 19,512, Birmingham Slag Co. *v.* A. G. S. *et al.*; No. 22,109, in the matter of rates on sand, gravel, crushed stone etc., within the state of South Carolina; I. & S. No. 2,740, sand, gravel and slag from Alabama and Tennessee to points in Georgia; I. & S. No. 3,250 sand, gravel, stone and chert between, from and to points in Mississippi Valley territory, all on rehearing, and the original hearing in I. & S. No. 3,625, sand, gravel, slag, stone and chert between points in southern territory.

In Sand, Gravel, Crushed Stone and Shells, 155 I. C. C. 247, and 157 I. C. C. 498, the commission prescribed rates to apply on sand and gravel made on a mileage-scale basis; the mileage to be figured over the shortest line over which car-load traffic could move without transfer of lading. On a movement of sand and gravel from Antoine, Ark., to Atkins, La., the carriers charged and collected a rate of $1.45 per net ton for a distance of 161.8 mi. The complainant contended that the rate should be $1.40, on a distance of 158.1 mi. through Bossier City, La. The commission has dismissed the complaint on finding that the traffic should not be transferred from the St. L. S. W. to the L. & A. at Bossier City either with or without transfer of lading.—I. C. C. Docket No. 25,715, Louisiana Highway Commission *v.* L. & A. *et al.*

New Complaints Filed

Crushed Stone, Sand and Gravel.—Alleging that the rates on crushed stone, sand and gravel from Cape Girardeau (Marquette) and Bonne Terre, Mo., to destinations in Illinois are in violation of Sec. 1, 2, 3 and 13, with competitors in Illinois unduly preferred, new rates are sought.—I. C. C. Docket No. 26,260, St. Joseph Lead Co. *et al.*, Bonne Terre, Mo. *v.* B. & O. *et al.*, filed by Walter G. Patton, T. M. of the St. Joseph Lead Co., and C. M. Tuttle, T. M., of the Marquette Cement Co.

Sand.—New rates and reparation are sought on an allegation on unreasonable rates and charges on silica sand from Ottawa, Ill., to Dallas, Tex.—I. C. C. Docket No. 26,236, Hess & Moneyham, Inc., Dallas, Tex. *v.* A. T. & S. F. *et al.*, filed by J. O. Crawford, practitioner.

Rate Committee Dockets

New England Freight Assn.

Crushed Stone.—To meet the competition of near quarries shippers propose a reduction in the rate on crushed stone[1] from Westfield to Baldwinville, Mass., from 96 c. to 80 c. per net ton to expire Mar. 31, 1934.—Docket No. 31,403.

To meet local competition carriers propose to reduce the rate on crushed stone[1] from Westfield, to Chester, Mass., from 60 c. to 50 c. to expire Mar. 31, 1934.—Docket No. 31,411.

Sand.—Carriers propose a rate on core sand[1] from Davisville, R. I., to New York, N. Y., of 15½ c.—Docket No. 31,467.

Shippers propose a reduction in the rate on molding sand[1] from Niverville, Brookview and Van Hosen, N. Y., to Poughkeepsie, N. Y., from 12½ c. to 9 c.—Docket No. 31,453.

Trunk Line Assn.

Amiesite.—Shippers propose a rate on coated crushed stone from Bethlehem, Pa., to Mill Hill, Pa., of $2.15 per net ton.—Docket No. 31,637.

Cement.—Carriers propose a rate on cement, car-load minimum weight 50,000 lb., from Bessemer, Chewton and New Castle, Pa., to North Graf-

ton, Mass., of 24½ c. per 100 lb.—Docket No. 31,464, Sup. 4.

Carriers propose a rate on cement from Glens Falls and Howes Cave, N. Y., to North Grafton, Mass., of 14½ c. per 100 lb.—Docket No. 31,464, Sup. 5.

Crushed Stone.—Shippers at Millville, W. Va., propose a rate on crushed stone[1] of 86 c. per ton to apply to Washington, University, Terra Cotta, Chillum, Lamond, Takoma Park, Silver Spring, Chevy Chase, Bethesda, Loughborough, Dalecarlia Reservoir, Georgetown, Linden, Forest Glen, Kensington, Garrett Park, Halpine, Rockville and Derwood.—Docket No. 31,564.

Shippers propose a rate on crushed stone[1] from Peddicord Siding, Baltimore, Md., to Ocean City, Md., of $1.70 per net ton.—Docket No. 21,594.

Carriers propose an increase in the rate on crushed stone[1] from Le Roy, N. Y., to Salamanca, N. Y., from 91 c. to $1.10 per net ton.—Docket No. 31,619.

Lime.—Shippers propose a rate of 8 c. per 100 lb., on lime and dry building mortar, car-load minimum weight 30,000 lb., from points in the Fredrick, Md.-Martinsburg, W. Va.-Strasburg, Va., districts to Washington, D. C.—Docket No. 31,555.

Shippers propose publication of the same rates on lime from Binnewater, N. Y., as are now in effect from Rosendale, N. Y.—Docket No. 31,570.

Carriers propose a rate on lime and dry building mortar, car-load minimum weight 30,000 lb., from Carson and Karo, Va., to Washington, D. C., of 8 c. per 100 lb.—Docket No. 31,555, Sup. 1.

Lime, Limestone and Mortar.—Shippers propose that tariffs publishing rates on dry building mortar, lime and unburned ground or pulverized limestone be amended to the extent of publishing therein the following rule applicable to destinations in Trunk Line territory: "Mixed car-loads of dry building mortar, and/or building lime and/or agricultural, chemical and land lime, and/or unburned ground or pulverized limestone, will be charged at actual weight and at the applicable rates for each of the respective commodities, subject to the highest car-load minimum weight for any article in the mixture, for each mixed car-load, deficit in the minimum weight, if any, to be paid for at the rate applicable on the highest-rated article in the mixture."—Docket No. M-3,268.

Limestone.—Carriers propose a rate on crude or lump limestone[1] from Martinsburg and Engle, W. Va., to Covington, Va., of $1.55 per net ton.—Docket No. 31,465, Sup. 4.

Shippers at Natural Bridge, N. Y., have asked for a rate on ground limestone, car-load minimum weight 50,000 lb., to Salamanca, N. Y., and Johnsonburg, Pa., of 15 c. per 100 lb.—Docket No. 31,622.

Shippers at Rosendale, N. Y., propose a rate on ground limestone to Paterson, N. J., of $1.70 per net ton.—Docket No. 31,631.

Sand.—Shippers propose a rate on industrial sand[1] from Dagusahonda and Althom, Pa., to North Tonowanda, N. Y., of $1.40 per net ton.—Docket No. 31,581.

Shippers propose a reduction in the rate on sand in open-top cars[1] from Tatesville, Pa., to Butler, Pa., from $2.05 to $1.70 per net ton.—Docket No. 31,592.

Shippers propose a rate on industrial sand[1] from Slatington, Pa., to Catasauqua, Pa., of 70 c. per net ton.—Docket No. 31,625.

Central Freight Assn.

Agricultural Limestone.—Shippers at Gibsonburg and Woodville, O., propose a reduction in the rate on agricultural limestone in box-cars, car-load minimum weight 50,000 lb., to Chester, W. Va., from $2.30 to $2.02 per net ton.—Docket No. 37,784.

Cement.—Shippers propose that the rates on cement, car-load minimum weight 50,000 lb., from E. Fultonham, O., to Jones Mills, Pa., be reduced from 22 c. to 15½ c. per 100 lb., and to Kendall, Md.. be reduced from 23 c. to 16 c. per 100 lb.—Docket No. 37,834.

Crushed Stone.—Carriers propose to publish the following reduced rates on crushed stone and related articles in open-top cars, from Waterville, O., to destinations in Michigan. To Adrian, 87 c.; to Ann Arbor, 92 c.; to Battle Creek, $1.45; to Howell, $1.07; to Jackson, $1.07; and to Lansing, $1.25 per ton.—Docket No. 37,533.

Shippers propose a reduction in the rate on crushed stone from E. Liberty, O., to Lakeview, O., from 60 c. to 50c. to expire Dec. 31, 1933.—Docket No. 37,588.

Shippers seek a rate on crushed stone from Greencastle, Ind., to Angola, Ind., of $1.45 per net ton.—Docket No. 37,816.

Crushed Stone and Slag.—A reduction in the rate on crushed stone and related articles and on slag from Black Rock, Buffalo and E. Buffalo, N. Y., to Van Buren, Brocton, Portland and Westfield, N. Y., from 90 c. to 80 c. per ton is proposed by shippers.—Docket No. 37,536.

Dolomite.—Shippers at Narlo, O., have asked that the rates on raw dolomite to E. St. Louis, Ill., and St. Louis, Mo., be reduced from $3.15 to $2.77 per gross ton.—Docket No. 37,537.

Shippers propose a reduction in the rate on raw dolomite in open-top cars. from Gibsonburg, O., and grouped points to Buffalo and Dunkirk, N. Y., and grouped points, from $1.79 to $1.49 per gross ton.—Docket No. 37,-629.

Roasted Dolomite. — Shippers at Martin, O., propose a rate on roasted dolomite[1] to Kokomo, Ind., of $2.10 per net ton.—Docket No. 37,787.

A reduction in the rate on roasted dolomite from Martin, O., to Mansfield, O., from $1.20 to $1.05 per ton is proposed by shippers.—Docket No. 37,847.

Western Trunk Lines Committee

Ground Limestone.—Shippers propose a line of reduced rates on ground limestone[1] from Hannibal, Mo., to stations in Iowa, representative of which are, to Cedar Rapids, 9½ c.; to Mason City, 12 c.; and to Des Moines, 10 c. per 100 lb.—Docket No. 3,089-N.

Lime.—A reduction in the rate on lime, car-load minimum weight 30,000 lb., from Quincy, Ill., to Auxvasse, Mo., from 19 c. to 12½ c., and to Fulton, Mo., from 23 c. to 12½ c. is proposed by shippers. — Docket No. 7,753-1.

Shippers are asking for the establishment of rates on lime, car-load minimum weight 50,000 lb., on the 80 per cent. basis to alternate with present rate on a minimum weight of 30,000, from Green Bay, Wis., to destinations in Michigan and Ohio.—Docket No. 3,294-C.

Southern Freight Assn.

Fluxing Stone.—Shippers propose a reduction in the rate on fluxing stone from Danley to Rockdale, Tenn., from $1.05 to 90 c. per net ton.—Docket No. 3,321.

Sand.—It is proposed to reduce the rate on sand[1] from Louisville, Ky., to Knoxville, Tenn., from 55 c. to 40 c. per net ton to expire June 30, 1934.—Docket No. 3,207.

a reduction in the rate on sand and

Sand and Gravel.—Carriers suggest gravel[1] from Jackson's Lake, Ala., to Montgomery, Ala., from 50 c. to 33 c. per net ton to expire Apr. 27, 1934.—Docket No. 3,238.

Southwestern Freight Bureau

Agricultural Limestone.—Shippers propose the addition of Atwood's Quarry No. 2, Mo., a local point on the Wabash, as a point of origin in Item 1,105-L, Sup. 71, W. T. L. Tariff No. 91.—Docket No. 2,268.

Lime.—Shippers request the establishment of a rate on carbonate of lime, car-load minimum weight 40,000 lb., from Mosher, Mo., to New Orleans, La., of 35 c. per 100 lb.—Docket No. 2,152.

Shippers at Mosher, Mo., propose a reduction in the rate on carbonate of lime, car-load minimum weight 40,000 lb., to St. Louis, Mo., from 22 c. to 12 c. per 100 lb.—Docket No. 2,161.

Shippers at Limedale Spur, Ark., propose a rate on lime, car-load minimum weight 30,000 lb., to Mobile, Ala., and Pascagoula and Moss Point, Miss., of 20½ c. per 100 lb.—Docket No. 2,278.

Sand.—Shippers propose a reduction in the rate on glass or silica sand from Wedron, Ill., to Bartlesville, Okla., from 22½ c. to 18 c. per 100 lb.—Docket No. 2,188.

Transcontinental Freight Bureau

Sand.—Shippers propose the establishment of a rate on silica sand from Group D in Tariffs 1-N and 4-K westbound of $5.00 per net ton, car-load minimum weight 100,000 lb.—Docket No. 15,674.

[1] The car-load minimum weight will be 90 per cent. of the marked capacity of the car, except that when the car is loaded to its full cubical of visible capacity, the actual weight will apply.

New Machinery and Supplies

Machine Fills, Closes and Seals Paper Bags

Bagpak, Inc., 220 East 42nd St., New York, N. Y., with its affiliated companies, the Consolidated Packaging Machinery Corp. and the Hoepner Automatic Scale Corp., has developed automatic machines which fill, close and seal open mouth bags at high speed. The Bagpaker is the latest of these machines and is built in four types, (a) a machine for automatically weighing filling and closing bags, (b) a machine for automatically closing bags which have been previously filled on other types of equipment, (c) a hand-fed machine for filling and closing, and (d) a hand-fed machine for closing only.

The complete automatic Bagpaker Type A consists of two automatic scales feeding into hoppers mounted on a revolving turret. The bags are placed on spouts on the turret and are filled while the turret revolves. During this process, the bottom of the bag, which rests on a conveyor, is agitated or joggled in order to settle the material in the bag. The filled bag is automatically taken off the spout and passed through a sewing unit and a tape applicator so that the bag is not only sewed shut but has a pasted seal which is entirely sift-proof. In this process the gussets are never opened but the bag is placed on the spout without the necessity of the operator opening the bag throughout its length. The Bagpaker completes the process, the operator being required merely for the purpose of putting on the bags.

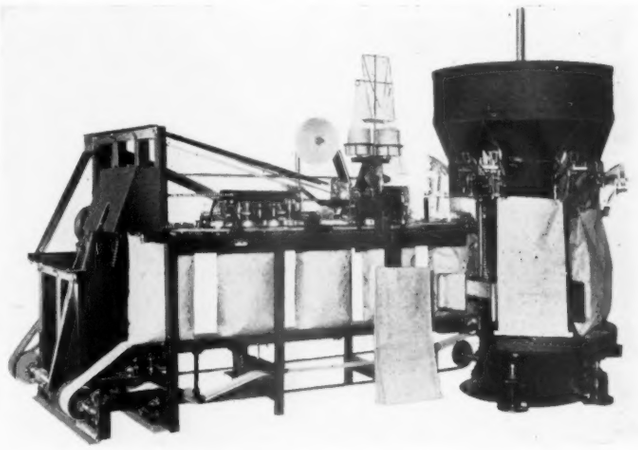
The Type B machine consists of the closing unit exactly similar to the A, but without the filling and settling devices. The Type C machine is a smaller unit, semi-automatic, which fills and closes bags with the same exact closure as the fully automatic machine but is of smaller capacity for use where less volume is required. The Type D machine illustrated is a semi-automatic closing unit for smaller capacities.

Various feeding devices, such as roll, worm or spike feeders are attached to the scales when the materials to be handled are non-free flowing or sticky or of the kind which are usually considered difficult to handle automatically. Where very dusty materials are handled, dust hoods can be placed around the turret and connected to the exhaust system of the plant. Neither these feeders nor dust catchers affect the closing part of the apparatus in any way as these problems are handled during the filling of the bag.

In many plants several commodities of similar character which vary in bulk are handled. To meet this condition Bagpakers are equipped with a rapid adjustment which moves the bottom conveyors up or down, thus permitting variations in the length of the bag.

This does not in any way affect the working parts, which remain fixed. It is possible to run this machine part of a day on a bag of one size and by a very rapid adjustment to change it over to another size bag during the rest of the day. After running one type of material all that is necessary is to clean out the hopper and the scale bucket and the machine is ready to operate on a different commodity.

Some of the features claimed for the Bagpaker are: Extreme accuracy in weight, a package which is completely sealed and sift-proof and which cannot lose any of its contents through leakage during shipment, a clean package, low cost, elimination of bag breakage during filling.

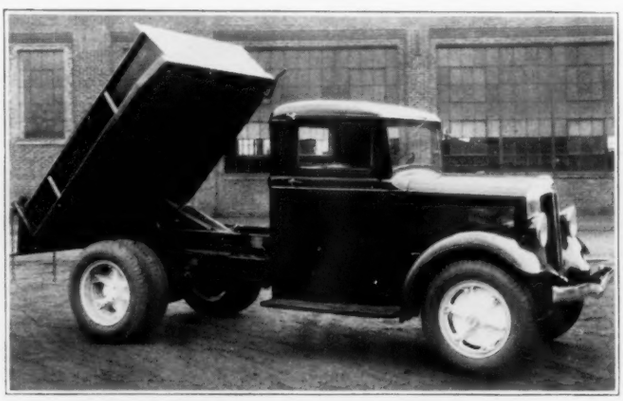


Automatic bag-packing machine.

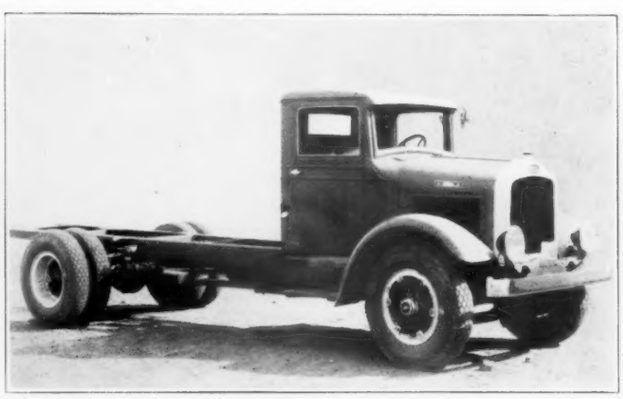
White Announces New Low-Priced Trucks

The White Co., Cleveland, O., recently announced two entirely new 6-cyl. trucks, Models 701 and 702, which, it is said, will make the company a competitor in the low-priced field for the first time in its history. Features of both models are, a new 6-cyl. engine of 75 hp. with Stellite screwed-in valve seats, rifle-drilled oil passages on all main bearings and rods, 4-wheel automatically-equalized power-assisted hydraulic brakes, safety springs, and heat-treated engine and chassis parts. A new chassis arrangement is also said to give a greater payload on a shorter wheelbase. These new models are available with 132 and 156-in. wheelbases.

The White Co. has also developed a new Model K series for modified load distribution which are available on all standard White models. These units are designed to carry more of the weight of pay load and body on the front axle than do the standard models on the same wheelbase. This series was brought out because of the increasing number of states which have passed highway legislation restricting



Model 702 with steel dump body.



The Model 630K truck chassis.

axle weights and overall lengths. It is said that most states which limit the gross weight also restrict the load on any one axle and that with the conventional truck design it is usually not possible to have the minimum gross weight allowable and still keep within the legal rear axle weight.

In the K models corresponding to the 630, 631, 640 and 641 standard models the back of the cab is moved closer to the front axle by bringing the engine through the dash. In the models corresponding to the 612 and 618 standard models the back of the cab is moved closer to the front axle by moving the axle rearward relative to the engine and by bringing the engine through the dash. To compensate for the heavier loads carried by the front tires heavier front axles, springs and steering gear are used and the frame is reenforced. Positive air circulation and dash insulation are said to prevent overheating of the cab.

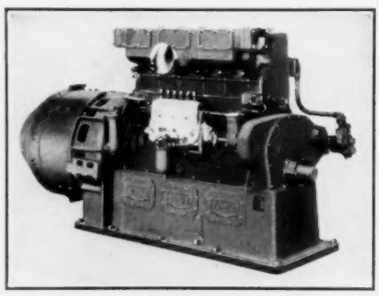
New Morris Dredge Pump Designed for High Heads

The Morris Machine Works,. Baldwinsville,. N. Y., recently added to its line of centrifugal pumps the Type F heavy-duty dredging pump which was developed specially for handling extremely abrasive mixtures against high heads. All of the parts in this pump subject to wear, such as the casing, impeller, disc, liners, sealing and throat rings, are made of semi-steel, manganese steel, or special Morris alloys The casing and impeller are of large diameter so that the pump will run at a comparatively low speed even when operating against a high head.

The position of the impeller can be adjusted from the outside of the pump to take up wear on the suction sealing ring and prevent internal leakage. All parts are heavily proportioned for strength and rigidity and the parts subject to greatest wear are designed to permit quick and economical replacement when necessary. These pumps are said to be especially suited for handling sand and gravel and for general dredging service where the material is to be delivered at a high elevation or through long pipelines.

Buda Develops Improved Diesel Generating Sets

The latest development of the Buda Co., Harvey, Ill., is a light and compact Diesel generating set which is claimed to produce current at approximately ¾ to 1 cent per kilowatt. These sets range in size from 10 to 90 kw., alternating and direct current. The engine is of the solid-injection type with the "shock-absorber" head which is said to cushion the shocks and make for smoother and quieter



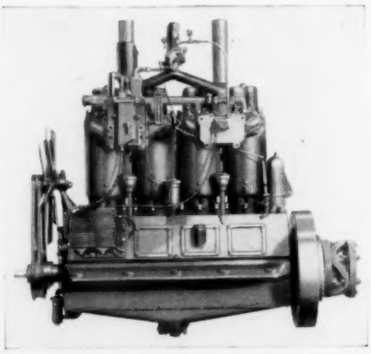
A Diesel generating set.

operation. Renewable cylinder liners, replaceable valve seats, and silichrome steel valves are other features. Electric starting is standard.

A small compact generator set fitted with a natural gas or gasoline engine of similar design has also been put on the market recently, ranging in size from 5 to 75 kw.

Northwest Announces Oil-Burning Engine

The Northwest Engineering Co., Chicago, Ill., announces a new oil engine that burns the lighter distillates known in various parts of the country as No. 1 furnace or stove oil, No. 1 engine or tractor distillate, etc. This engine is of the heavy-duty type, operating at slow speeds and is said to possess the torque characteristics and



The new gasoline-type oil engine.

hanging-on qualities desirable for shovel, crane and dragline service.

This engine has no moving parts other than those found in a gasoline engine, is started by cranking and is said to have pressures not exceeding those in a gasoline engine. It has an ignition system and a carburetor and the special combustion chamber and manifold design results in the heavy fuel oil reaching the cylinder in practically the same condition as gasoline. According to the manufacturers the fuel conversion system meters the fuel accurately to the engine, atomizes it finely into the air stream, and distributes it accurately to each of the four cylinders.

Move St. Louis Office of Chain Belt Company

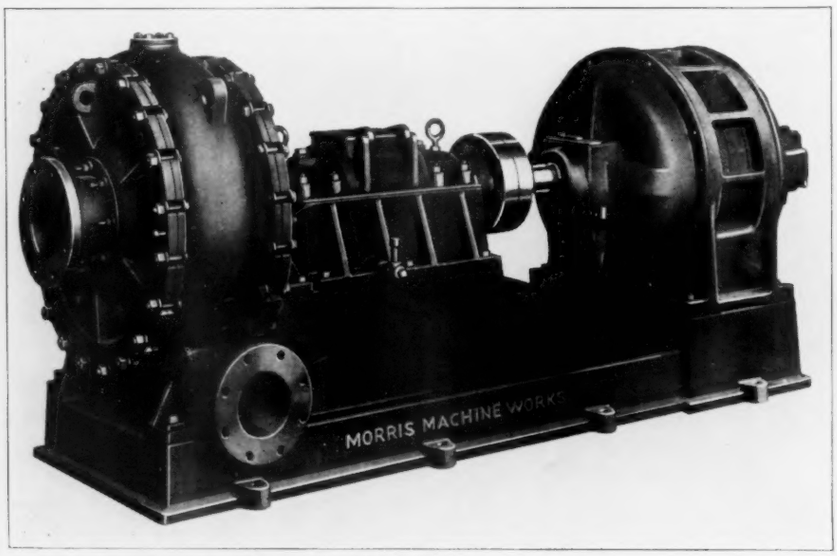
The Chain Belt Co., Milwaukee, Wis., announces the removal of its office in St. Louis, Mo., from 339 No. Taylor Ave. to 5475 Cabanne Ave. This branch has been operating since the first of the year under the direction of Fitch S. Bosworth, who has been with the company over 20 years.

Raymond Announces Metallurgical Division

The Raymond Bros. Impact Pulverizer Co., Chicago, Ill., announces the organization of a Metallurgical Division for supplying a full line of coal pulverizing, transporting and burning equipment for complete powdered fuel installations.

Correction

In a brief item published on page 12 of the Nov., 1933, issue of Pit and Quarry a statement was made which implied that the C. W. Poe Co., Cleveland, O., was the first to discover that slag could be made from mineral wool. Any such statement is of course incorrect as mineral wool has been made from slag for a number of years. J. R. Thoenen, senior mining engineer of the U. S. Bureau of Mines discussed this subject in a bulletin I. C. 6142 published in June, 1929.



The new Type F heavy-duty dredging pump.

Eighteen tons per hour from a No. 19 Crusher—100% through three-eighth inch opening using less than fifteen horsepower

THE following is the result of a test on a No. 19 Kennedy Ball Bearing Gearless Crusher.

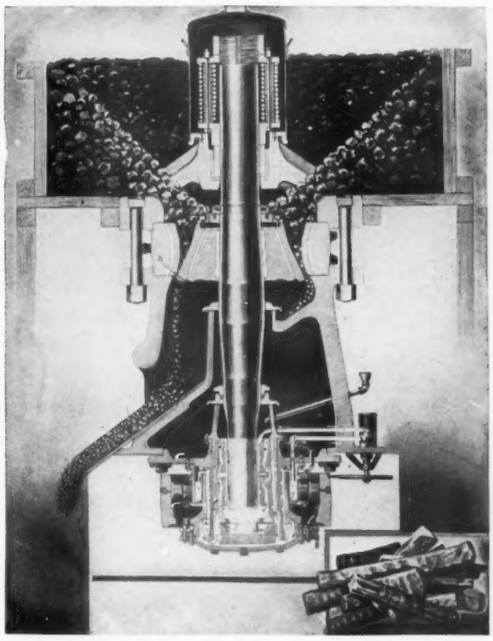
Exceedingly hard glacial gravel, 1½″ and plus ⅝″, was crushed for sand for concrete purposes, and less than fifteen horsepower was used.

The same crusher can be opened up and 1½″ stone can be produced at a rate of from 30 to 50 tons per hour.

With the opening set to ⅛″ on the closed side the following results were obtained:

Minus ⅜″	100 %
Plus 3 mesh	21½%
Minus 3—Plus 4	17 %
Minus 4—Plus 14	36½%
Minus 14—Plus 48	15 %
Minus 48—Plus 100	4 %
Minus 100	5½%

This was crushed at the rate of 18 tons per hour.



Built in various sizes with receiving openings from 1¾″ to 14″. Produces sizes from ⅛″ to 3″, with capacities up to 620 tons per hour on the larger sizes.

The Kennedy Ball Bearing Gearless Gyratory Crusher is guaranteed to do more crushing, size for size, of any given material, with less power consumption, than any crusher ever built. 90% Of the power input to motor is applied direct to breaking the rock between head and concaves. The head and shaft of the type "S" crusher is suspended on springs to permit tramp steel to pass through. The ball-and-socket eccentric is self-aligning. This crusher may be operated by a synchronous motor, built in the pulley of the crusher, or by belt from standard motor. This crusher takes one-half the power required for a geared crusher, and saves 80% in the cost of maintenance.

We manufacture a complete line of primary jaw and gyratory crushers, ball mills, rod mills, screening, elevating, and conveying equipment, etc. Complete information describing any or all of this machinery will be sent on request. *Send for latest information on our vibrating screen.*

KENNEDY-VAN SAUN MFG. and ENG. CORP.

Two Park Avenue — New York, N. Y.

BRANCH OFFICES:—Chicago: 120 South La Salle St. Birmingham, Ala.; Comer Building. Los Angeles, Calif.; 416 South Spring St. London, England; Bush House, Paris, France; 40 Rue des Mathurins. Johannesburg, S. Africa; 73 Cullinan Bldg. Canadian Agents; The William Kennedy & Sons, Ltd., Owen Sound, Ont. Walkers Limited, Maryborough, Queensland, Australia. New Zealand Agents; Booth, MacDonald & Co., Ltd., Christchurch.

Classified Buyers' Guide

A Directory of PIT AND QUARRY Advertisers Arranged According to Product

Although every effort is made to insure accuracy and completeness in these listings, the publisher cannot accept responsibility for errors or omissions. Any mistakes discovered will gladly be rectified, if brought to the attention of the Advertisers' Service Department.

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Heedicsite Co.

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Eagle Iron Works

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Chicago Steel Foundry Co.

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Hetherington & Berner, Inc.
Jeffrey Mfg. Co.

Automatic Feeders
Jeffrey Mfg. Co.

Balls (Grinding)
Jeffrey Mfg. Co.
Kennedy-Van Saun Mfg. and Eng. Corp.

Balls (Tube-Mill, etc.)
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Jeffrey Mfg. Co.
Kennedy-Van Saun Mfg. and Eng. Corp.

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Flexible Steel Lacing Co.

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Sprout, Waldron & Co.

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Flexible Steel Lacing Co.

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Morrow Mfg. Co.
Sprout, Waldron & Co.

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Kennedy-Van Saun Mfg. and Eng. Corp.
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Dragline Excavators
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Sauerman Bros., Inc.

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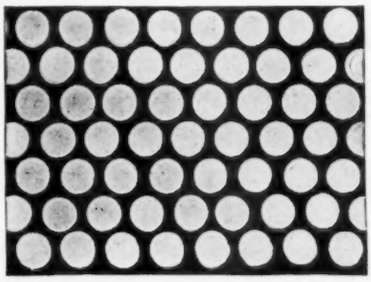
MORROW SCREEN PLATES



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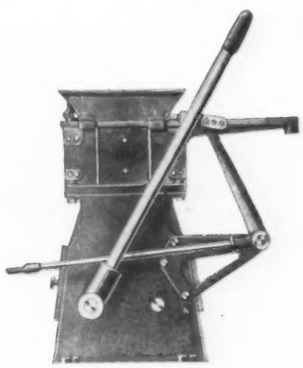

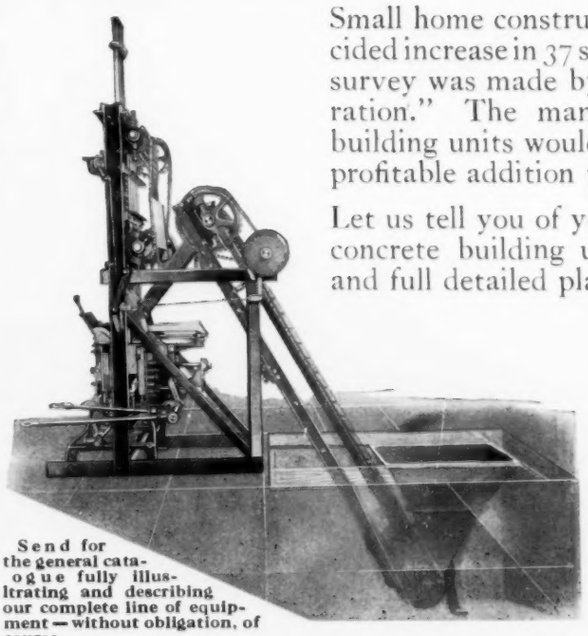

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Classified Buyers' Guide

A Directory of PIT AND QUARRY Advertisers Arranged According to Product

Index to Advertisers on Page 64

Gears and Pinions
Haiss Mfg. Co., Geo.
Sprout, Waldron & Co.

Gears (Herringbone)
Sprout, Waldron & Co.

Gelatin (See Explosives)

Generators (See Motors and Generators)

Glass Sand Equipment
Lewistown Foundry & Machine Co.

Grab Buckets (See Buckets—Clamshell, Orange-Peel, etc.)

Grating (Steel)
Hendrick Mfg. Co.

Grinding Balls (See Balls, Grinding)

Grizzlies
Allis-Chalmers Mfg. Co.
Eagle Iron Works
Hendrick Mfg. Co.
Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Fdy. & Mach. Co.
Smith Engr. Works

Guards (Wire)
National Wire Cloth Co.

Guns (Hydraulic)
Georgia Iron Works
Hetherington & Berner, Inc.

Hammer Mills (See Crushers—Hammer)

Hoists
Hetherington & Berner, Inc.
McLanahan and Stone Corp.
Sauerman Bros., Inc.
Smith Engr. Works
Sprout, Waldron & Co.

Hoppers
Hendrick Mfg. Co.

Hose Couplings (See Couplings)

Hydraulic Guns (See Guns—Hydraulic)

Idlers
Smith Engr. Works
Sprout, Waldron & Co.

Kilns and Coolers (Rotary)
Allis-Chalmers Mfg. Co.
Kennedy-Van Saun Mfg. and Eng. Corp.

Lifter Plates
Chicago Steel Foundry Co.

Lime Kilns
Kennedy-Van Saun Mfg. and Eng. Corp.

Linings (Ball- and Tube-Mill) (See Mill Liners and Linings)

Loaders and Unloaders
Haiss Mfg. Co., Geo.
Sprout, Waldron & Co.

Locomotives (Electric, Gas and Steam)
Lima Locomotive Works

Magnetic Pulleys See Pulleys, Magnetic

Mill Liners and Linings
Kennedy-Van Saun Mfg. and Eng. Corp.

Mills (Grinding) (See also Crushers—Hammer)
Allis-Chalmers Mfg. Co.
American Pulverizer Co.
Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Fdy. & Mach. Co.
Sprout, Waldron & Co.

Motor Trucks
General Motors Truck Co.

Motors and Generators
Allis-Chalmers Mfg. Co.

Motors (Internal-Combustion) (See Engines — Internal-Combustion)

Nails
American Steel & Wire Co.

Nozzles (Hydraulic) (See Guns—Hydraulic)

Partitions (Wire)
National Wire Cloth Co.

Perforated Metal Plates
Allis-Chalmers Mfg. Co.
Chicago Perforating Co.
Hendrick Mfg. Co.
Morrow Mfg. Co.
Sprout, Waldron & Co.

Pipe Flanges
Georgia Iron Works
Hetherington & Berner, Inc.

Plug Valves (See Valves)

Pneumatic Drills (See Drills, Rock)

Portable Conveyors
Haiss Mfg. Co., Geo.
Sprout, Waldron & Co.

Portable Engines (See Engines—Internal Combustion)

Portable Loaders (See Loaders and Unloaders)

Power Cables (Rubber Clad)
American Steel & Wire Co.

Power Shovels (See Shovels, Electric, Internal-Combustion and Steam)

Pulleys (Magnetic)
Sprout, Waldron & Co.

Pulleys (Wing)
Sprout, Waldron & Co.

Pulverized Fuel Systems
Kennedy-Van Saun Mfg. and Eng. Corp.

Pulverizers (See also Crushers; Mills; etc.)
American Pulverizer Co.
Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Foundry & Machinery Co.

Pump Valves (See Valves, Pump)

Pumps (Cement Slurry)
Morris Machine Works

Pumps (Centrifugal)
Allis-Chalmers Mfg. Co.
Georgia Iron Works
Hetherington & Berner, Inc.
Morris Machine Works

Pumps (Dredging)
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Georgia Iron Works
Hetherington & Berner, Inc.
Morris Machine Works

Pumps (Sand and Gravel)
Allis-Chalmers Mfg. Co.
Georgia Iron Works
Hetherington & Berner, Inc.
Morris Machine Works

Purifiers, Steam (See Steam Purifiers)

Rock Drills (See Drills—Rock)

Rod Mills
Kennedy-Van Saun Mfg. and Eng. Corp.

Roller Bearings
(See Bearings, Roller)

Rope (Wire) (See Wire Rope)

Sand Separators
McLanahan and Stone Corp.
Smith Engr. Works

Sand-Settling Tanks
Smith Engr. Works

Scrapers (Power Drag)
Sauerman Bros., Inc.

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Allis-Chalmers Mfg. Co.
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Deister Machine Co.
Eagle Iron Works
Haiss Mfg. Co., Geo.
Hendrick Mfg. Co.
Kennedy-Van Saun Mfg. and Eng. Corp.
Lewistown Foundry & Machinery Co.
McLanahan and Stone Corp.
Morrow Mfg. Co.
National Wire Cloth Co.
Productive Equip. Corp.
Smith Engr. Works
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Screens (Vibrating or Shaking)
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Deister Concentrator Co.
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Kennedy-Van Saun Mfg. and Eng. Corp.
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McLanahan and Stone Corp.
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Smith Engr. Works
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Separators (Air) (See Air Separators)

Sheaves
Allis-Chalmers Mfg. Co.
Eagle Iron Works
Haiss Mfg. Co., Geo.
Hetherington & Berner, Inc.
McLanahan and Stone Corp.
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Shovels (Electric, Internal Combustion and Steam)
Ohio Power Shovel Co.

Skip Hoists and Skips
Allis-Chalmers Mfg. Co.
Hetherington & Berner, Inc.

Spouts (See Chutes and Chute Liners)

Sprockets and Chain
Sprout, Waldron & Co.

Steel (Alloy)
Chicago Steel Foundry Co.

Steel Grating (See Grating, Steel)

Steel Inclines (See Inclines, Steel)

Steel Plate Construction
Hendrick Mfg. Co.
Hetherington & Berner, Inc.
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Storage Equipment
Haiss Mfg. Co., Geo.
Sauerman Bros., Inc.

Tanks
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Tanks (Sand-Settling)
Morrow Mfg. Co.
Smith Engr. Works

Tools (Drill) (See Drilling Accessories)

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Nordberg Mfg. Co.

Tractors
Allis-Chalmers Mfg. Co.

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General Motors Truck Co.

Tramways (Aerial)
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Transmission Belting (See Belting)

Transmission Machinery
Allis-Chalmers Mfg. Co.

Truck Cranes (See Cranes)

Trucks and Trailers (See Motor Trucks)

Tube-Mill Liners (See Mill Liners and Linings)

Tube Mills (See Mills—Ball, Tube, etc.)

Underground Loaders
Allis-Chalmers Mfg. Co.

Vibrating Screen Plate
Chicago Perforating Co.
Hendrick Mfg. Co.
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Vibrating Screens (See Screens—Vibrating)

Washers (Sand, Gravel, and Stone)
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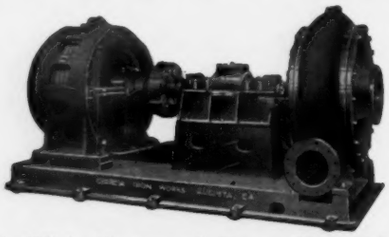

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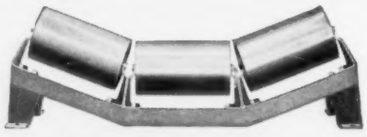

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- ☐Bins, steel
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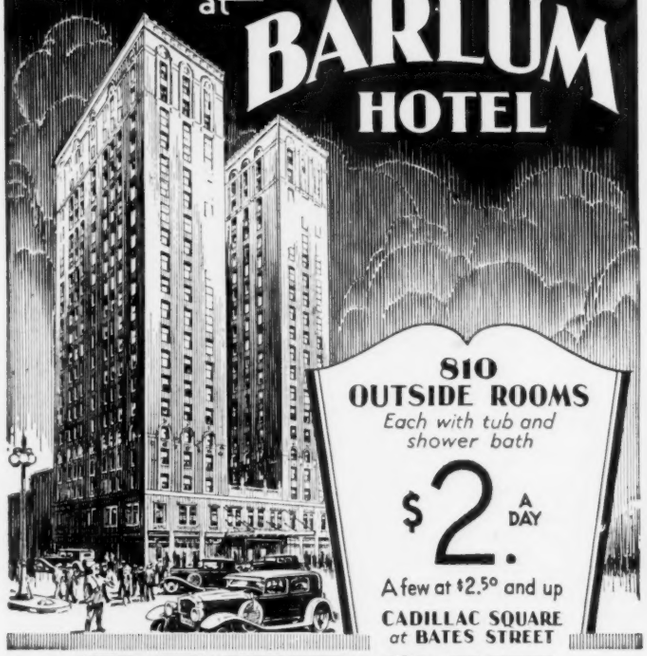

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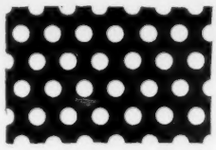

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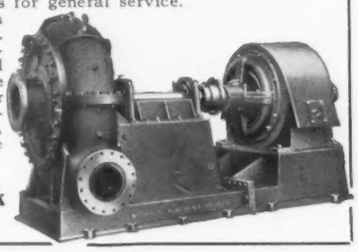

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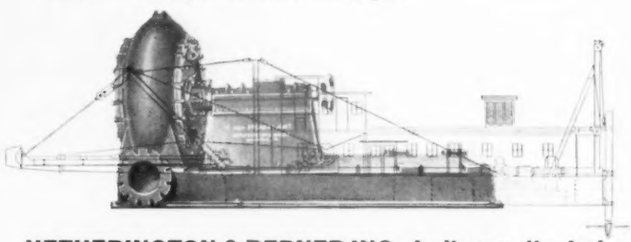

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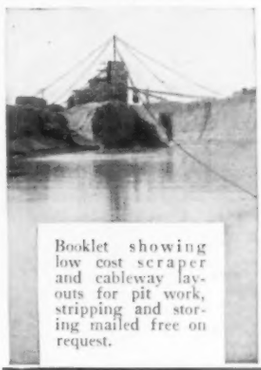

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1—25 ton Ohio locomotive crane 50' boom, D.D. A.S.M.E. boiler.
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Gas and Electric Motors, 1 HP to 200 HP.
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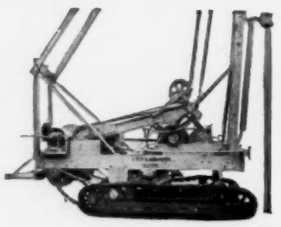

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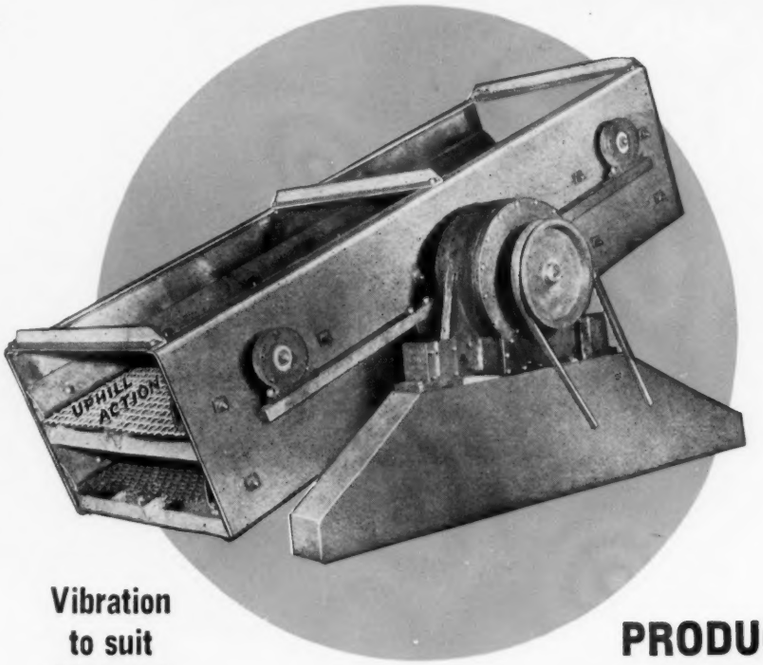

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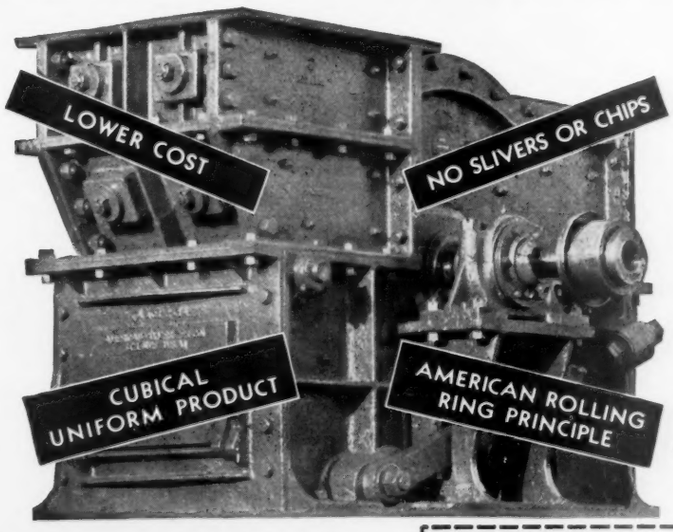

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